JPRS 76837

18 November 1980

USSR Report

ENERGY

No. 38

FBIS FOREIGN BROADCAST INFORMATION SERVICE

NOTE

JPRS publications contain information primarily from foreign newspapers, periodicals and books, but also from news agency transmissions and broadcasts. Materials from foreign-language sources are translated; those from English-language sources are transcribed or reprinted, with the original phrasing and other characteristics retained.

Headlines, editorial reports, and material enclosed in brackets [] are supplied by JPRS. Processing indicators such as [Text] or [Excerpt] in the first line of each item, or following the last line of a brief, indicate how the original information was processed. Where no processing indicator is given, the information was summarized or extracted.

Unfamiliar names rendered phonetically or transliterated are enclosed in parentheses. Words or names preceded by a question mark and enclosed in parentheses were not clear in the original but have been supplied as appropriate in context. Other unattributed parenthetical notes within the body of an item originate with the source. Times within items are as given by source.

The contents of this publication in no way represent the policies, views or attitudes of the U.S. Government.

PROCUREMENT OF PUBLICATIONS

JPRS publications may be ordered from the National Technical Information Service (NTIS), Springfield, Virginia 22161. In ordering, it is recommended that the JPRS number, title, date and author, if applicable, of publication be cited.

Current JPRS publications are announced in Government Reports Announcements issued semimonthly by the NTIS, and are listed in the Monthly Catalog of U.S. Government Publications issued by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

Indexes to this report (by keyword, author, personal names, title and series) are available through Bell & Howell, Old Mansfield Road, Wooster, Ohio, 44691.

Correspondence pertaining to matters other than procurement may be addressed to Joint Publications Research Service, 1000 North Glebe Road, Arlington, Virginia 22201.

Soviet books and journal articles displaying a copyright notice are reproduced and sold by NTIS with permission of the copyright agency of the Soviet Union. Permission for further reproduction must be obtained from copyright owner.

JPRS 76837

18 November 1980

USSR REPORT

ENERGY

No. 38

CONTENTS

ENERGY CONSERVATION

Tyumen' Transport Administration Conserves Fuel, Energy
(P. Shulepov; TRUD, 4 Oct 80).................................. 1

Energy Conservation, Efficiency Exhorted in Preparation for Winter
(Editorial; PRAVDA, 29 Sep 80).................................. 3

FUELS

Minister Discusses Coal Industry, CEMA
(B. F. Bratchenko; UGOL', Sep 80)............................... 6

Krylov Foresees Increased Soviet Oil Production
(Alexander Krylov Interview; MOSCOW NEWS, 28 Sep-5 Oct 80)... 23

USSR Assists Other Countries in Developing Their Gas Industries
(A. I. Sorokin; STROITEL'STVO TRUBOPROVODOV, Aug 80)......... 26

Azimuthal Trends of Soviet Gas Deposits Analyzed
(G. P. Tamrazyan, S. T. Ovnatanov; GAZOVAYA PROMYSHLENNOST', Aug 80).. 30

Unified Supply System Viewed as Solution to Azerbaijan Gas Problems
(R. Mamedov; BAKINSKIY RABOCHIY, 19 Sep 80)................... 35

Build-up of Tyumen' Gas Field Facilities Planned
(G. P. Sulimenkov; GAZOVAYA PROMYSHLENNOST', Aug 80)......... 38

Progress Made in Armenian Gasification, Gas Supply
(S. Gyurdzhinyan; KOMMUNIST, 7 Sep 80)........................ 41

Rules Outlined To Protect Underground Gas Line From Damage by Surface Workers
(TURKMENSKAYA ISKRA, 3 Sep 80)................................ 43

More Attention Given to Natural Gas With Hydrogen Sulfide
(GAZOVAYA PROMYSHLENNOST', Aug 80)............................ 45

Lag in Coal Mine Tunneling Explained
(A. Lebedev; SOTSIALISTICHESKAYA INDUSTRIYA, 17 Sep 80)...... 47

In-House Construction To Build Up Tyumen' Gas Fields
(S. A. Orudzhev; GAZOVAYA PROMYSHLENNOST', Aug 80)........... 49

More Housing, Amenities Must Be Provided to Gas Fields
(A. G. Gudz'; GAZOVAYA PROMYSHLENNOST' Aug 80)................ 56

Roads Must Be Built for West Siberian Gas Fields
(G. A. Shemrayev, B. Sh. Indin; GAZOVAYA PROMYSHLENNOST', Aug 80)... 60

Improvements Made in Oil Well Repair Equipment
(S. Kuliyev; VYSHKA, 23 Sep 80)............................... 63

Briefs

Surgut GRES 65
Yakutsk Transmission Line 65
Sayano-Shushenskiy GES 65
Reservoir Filled 65

ENERGY CONSERVATION

TYUMEN' TRANSPORT ADMINISTRATION CONSERVES FUEL, ENERGY

Moscow TRUD in Russian 4 Oct 80 p 1

[Article by P. Shulepov, chief engineer of Tyumen' transport administration: "Conserve Fuel and Energy"]

> [Text] In the recently adopted decree on the experience of the collectives in the ferrous, nonferrous metallurgy and chemical industry enterprises for the use of secondary fuel and energy resources the CPSU Central Committee recommended activation of organizational and educational work towards strengthening the pattern of conserving fuel and energy,and decisively combatting manifestations of poor management and wastefulness in their consumption.
>
> The materials published here relate the course of the all-union public inspection of the efficient use of raw material, materials and fuel and energy resources, the experience and shortcomings in saving energy resources.

Several years ago the Tyumen' transport administration began to introduce a system of efficient use of fuel resources. First of all within our available staff we set up a specialized service that was called upon to plan, implement in practice all the measures, plans and scientific recommendations directed towards saving fuel.

I will relate some practical results of this work.

Only one-third of our automobile fleet had warm garages, and the trucks mainly stand outside in the Siberian winter. Several years ago we were even forced to leave the municipal buses with their motors running overnight so that they would start on time in the morning. Over 250,000 liters of gasoline and diesel fuel per year escaped, i.e.,"went down the drain" for warming-up the car engines. This is why the department of fuel and energy resources first of all took up the creation of a system of preheating the engines at the parking lots. Now 20 auto enterprises out of 22 are supplied with a preheating system completely, and this indicator equals 95% on the whole for the administration. At the same time the warming-up is done by less energy-intensive methods, gas burners, electrical air attachments. The annual economic effect was R 40,000.

The introduction of differentiated winter increases to the fuel consumption norms yielded a large effect. Previously from October through April a single increase was set for the entire Tyumenskaya oblast region, 15% to the summer standard regardless of the type of automobile, nature of the winter, or distance from the polar circle. It is evidently incorrect to place the "UAZ" and "Ural" under the same conditions for no two winters are alike: some winters the thermometer rarely drops below -20°, while other winters the mercury stays for months at the "minus 40" mark. And of course the climate of the southern zone of the oblast cannot be compared, for example, with Salekhard.

As a result, some drivers were not concerned at all about conserving and efficient use of fuel, and at the end of winter had a large saving of fuel and received unmerited bonuses, while others were constantly above their quota. Naturally such a system did not stimulate the drivers at all to search for ways to conserve fuel and lubricants.

Now special tables are employed that indicate the corrected coefficients of fuel consumption for the main types of automobiles depending on the air temperature in the given shift. Logs to calculate the weather of each working day have been introduced into each automobile dispatcher's office. The calculations are made when processing the travel sheets.

The results surpassed all expectations. Already in the first 1974-1975 winter the administration saved 1.880 million liters of gasoline and diesel fuel. Roughly the same saving was successfully attained in subsequent winters. For example, from October 1978 to April 1979 the administration conserved 1.145 million liters of fuel.

On the whole the introduction of the new system for efficient use of fuel and energy resources permitted the administration to reduce the annual consumption of gasoline and solar oil by 5%. Last year alone we succeeded in reducing the expenditures for acquisition of fuel for machines and mechanisms by 158,000 rubles. This year the collective of the administration is committed to conserving 485 T of gasoline, 260 T of diesel fuel, and 500,000 kilowatt-hours of electricity for a total of R 320,000. The collectives of the administration enterprises in the last 9 months have already conserved 626 T of gasoline, 300 T of diesel fuel, and 252,000 kilowatt-hours of electricity. This is the contribution of the automobile transportation workers of the Tyumen' administration to the coin box of the all-union public inspection for efficient use of raw materials, materials and fuel and energy resources.

9035
CSO: 1822

ENERGY CONSERVATION, EFFICIENCY EXHORTED IN PREPARATION FOR WINTER

Moscow PRAVDA in Russian 29 Sep 80 p 1

[Editorial: "Fuel for the Winter"]

[Text] The country is entering the final quarter of the year. It is the approaching fall-winter period that is the most difficult for industry because the demand for heat and energy sharply rises. We need to prepare seriously for work under winter conditions: create the necessary fuel reserves at all the enterprises, bring the energy industry, equipment, and heat routes into order, and supply the urban and rural population with heat.

There are all opportunities for this. In the last 1.5 decades alone our country has increased the extraction of oil, including gas condensate, almost 3-fold, and of gas over 4-fold. New oil and gas fields, large coal mines and open pits, and nuclear power plants have been put into operation. The oil, gas, mining and energy workers have expanded the socialist competition for a worthy meeting of the 26th CPSU Congress. They are striving to successfully complete the year and fulfill the commitments. It is especially important now that this patriotic movement becomes truly a mass movement. The communists who head the competition in the fuel and energy branches need to aim each collective at intensive work, and to search for and find new opportunities for increasing the extraction of fuel and its rapid delivery to the consumers.

Practice indicates, however, that not all the reserves are utilized. Such associations as "Komineft',""Tomskneft'," and "Nizhnevartovskneftegaz" are not coping with the planning assignments. This has a negative effect on the rhythm of the oil refineries. There has been a noticeable reduction in the rates of extraction by certain coal industry enterprises in the Donetsk, Kuznetsk and Karagandinsk basins. There are major mechanized complexes here, but their output is often low and the combines are idle for a long time. The engineering services do not keep to the schedules for repair and maintenance of the mechanisms; as a result they malfunction prematurely. The coal workers are bearing large losses due to the lagging of the coal and quarry fund, and the disproportions between the main and auxiliary industries.

The organization of transportation traffic requires steady attention and concern on the threshold of winter. It is the fault of the railroad workers that the coal, shale and mazut do not always reach the customers in time. A large lag was permitted, for example, in coal hauling from Ekibastuz and Kuzbass. A number of railroads disrupt the delivery of oil. In August alone the oil refineries of Bashkiria, the Kuybyshevskaya and Permskaya oblasts did not receive thousands of tank cars. The leaders of the Ministry of Communications should critically evaluate the situation, maneuver the rolling stock better, set up rapid control over the transportation traffic, make more complete use of the advantages of block shipping of fuel, form heavily-loaded trains, reducing their travel time, and not permit above-standard delays in the cars and tank cars.

Winter is not an easy test for the power engineers. Almost half of the consumed fuel is spent precisely in this branch. This means that at each thermal plant the power units and boiler houses should be put into order faster, and above-plan stopping of the units should not be permitted. However many enterprises of the USSR Ministry of Power and Electrification are not hurrying to realize the plans to repair the active equipment. The putting into operation of new plants is also being delayed, especially at the Smolenks, Chenobyl', Yuznoukrainskiy, and Rovno nuclear plants. In order to eliminate the shortcomings at the construction sites the ministries and departments should introduce an advanced three-shift schedule more energetically there and combine the construction and installation work.

It is important to be concerned in every way possible about the saving of the available resources and not to permit losses of fuel and energy. The CPSU Central Committee decree published the other day on the work experience of the collectives of the ferrous, nonferrous metallurgy and chemical industry enterprises for the use of secondary fuel and energy resources notes that this reserve is a major one in guaranteeing the rising needs of the national economy and increasing production efficiency. Good experience has been accumulated at the Magnitogorsk Metallurgical Kombinat, the Volkhov Aluminum Plant and in the Novopolotsk production association "Polimer." The collectives of these enterprises have conserved about 25 million tons of fuel since the beginning of the five-year plan. Here up to 40% of the need for fuel is covered by secondary thermal resources; the level of heat recovery is 1.5-2-fold greater than the average branch indicators.

There should be wider dissemination of the experience of the leading collectives where they are able to wisely consume fuel and energy. Here their calculation has been well organized, and strict control has been set up on the use of material and energy resources not only on the plant scale, but also in each shop, on each section, and work site. Work for saving and economy should start precisely from here, and a necessary continuation of it is perfection of equipment and technology, the introduction of progressive processes, and more economical methods of raw material processing.

The party and soviet organs in the localities have been called upon to increase the level of organizational and political work directed towards preparation of the enterprises for winter. The questions of a rise in fuel extraction and its delivery, maximum involvement in production of secondary energy resources must be in the center of attention of the communists, labor collectives, and must find practical reflection in the precongress competition. Let everyone who extracts coal, oil and gas and who produces and uses electricity or heat display greater concern for the successful fulfillment of the plans and commitments, and strive to eliminate losses, and reduce outlays of fuel and energy resources per unit of product.

On these autumn days the party, trade union and komsomol activists and people's controllers are obliged to verify in the most attentive manner the preparation of the industrial enterprises and residences for winter, and to wage a decisive battle with any manifestations of poor management and wastefulness. The more reliable the energy supply to the national economy, the more successful the end to this year will be, and the more confident the start of the new five-year plan.

9035
CSO: 1822

FUELS

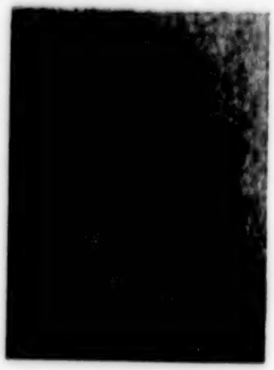
MINISTER DISCUSSES COAL INDUSTRY, CEMA

UDC 622.33(47+57) "1951-1980"

Moscow UGOL' in Russian No 9, Sep 80 pp 3-10

[Article by B. F. Bratchenko, USSR Minister of Coal Industry: "The USSR Coal Industry in the Last 30 Years"]

[Text] About the Author



Boris Fedorovich Bratchenko was born in Armavir, Krasnodarskiy Kray, in 1912. He graduated from the Moscow Mining Institute in 1935 and went to work in the coal industry. Between 1935 and 1960 he went through the positions of deputy section chief, mine chief, chief engineer of a trust, and chief engineer of a combine to become deputy USSR minister of the coal industry, chief of a USSR Gosplan division, and chairman of the Kazakh SSR Council of Ministers and chairman of the Kazakh SSR State Planning Commission. He has been USSR minister of the coal industry since 1965.

B. F. Bratchenko was elected a nonvoting member of the CPSU Central Committee in 1966 and became a full member in 1971. He has been a deputy to the Supreme Soviet of the USSR, sixth-ninth convocations. Among his awards are three Orders of the Labor Red Banner and many medals. He has won the USSR State Prize.

B. F. Bratchenko is the head of the Soviet section of the CEMA standing commission on the coal industry.

[Text] The formation of the Council of Economic Mutual Assistance (CEMA) in 1949 played a decisive part in deepening economic integration, intensifying national economic development, and accelerating scientific-technical progress in the countries of the socialist community. The economies of the USSR and the other socialist countries are developing on a comprehensive basis, with mutual coordination among all sectors, and with a greater rate of growth in heavy industry, which insures creation of the material-technical base for the development of socialist society.

Considerable attention is focused on development of the coal industry as a primary element of the fuel-energy complex. The CEMA countries are successfully meeting the problem of supplying coal to their economies as the result of fraternal cooperation, which takes the form of coordinating plans and rendering mutual economic and scientific-technical assistance. In the USSR coal today accounts for 29 percent of the total structure of the fuel-energy balance. In addition, coal is a valuable mineral raw material for the metallurgical, chemical, and other sectors of industry. In the last 30 years the extraction of ordinary coal in the USSR has increased 2.8 times, from 261 million tons to 718.7 million tons (see Figure 1 below).

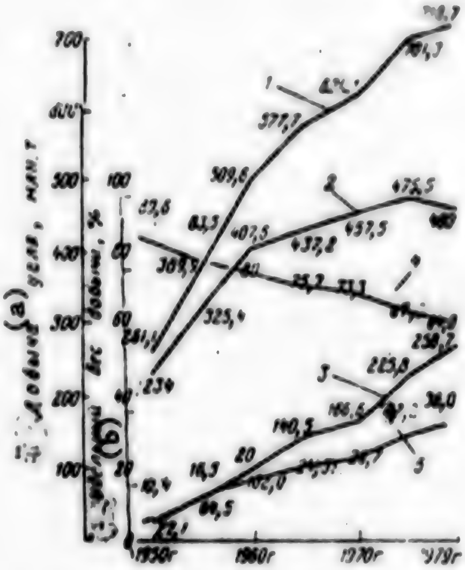


Figure 1. Coal Extraction in the USSR.

Key:
- (1) Total;
- (2) Underground Mining;
- (3) Open-Cut Mining;
- (4) Percentage of Underground Mining
- (5) Percentage of Open-Cut Mining;
- (a) Coal Extraction, millions of tons;
- (b) Percentage of Extraction.

The coal reserves in the USSR are unevenly distributed. About 80 percent of them are concentrated in the eastern regions where the principal development of coal extraction in the future is planned. The primary coal basins in the European USSR are the Donets, Pechora, and suburban Moscow basins; in the eastern regions we have the Kuznets, Karaganda, Kansk-Achinsk, and South Yakutia basins.

Extraction of coal by underground mining increased from 227.3 million tons to 455.6 million tons between 1950 and 1979; the technical level of underground mines has changed substantially. Our underground mines have been significantly updated by 1980; old mines have either been shut down because their reserves were worked out or they have been rebuilt. In the past 30 years 660 new underground mines have been brought into use. Only 30 percent of the mines have extraction levels of less than 1,000 tons a day at the present time, whereas the proportion of mines extracting more than 3,000 tons a day has risen to almost 25 percent.

During the period under consideration there have been several stages in the development of technology and equipment at the working face. The Donbass Combine, which arrived in the 1940's to replace the simple cutting machine, marked the beginning of a new technological orientation to broad-sweep coal excavation with individual supports (at first wood and later metal). In the 1950's this combine became the basic coal extraction machine in all the coal basins of the Soviet Union and in the underground mines of many foreign countries. In 1951 the UKT and KPTG combines for working very thin seams (0.5-0.75 meters thick) began to be produced. The introduction of broad-sweep combines made it possible to increase the workload of a face by 1.5-2 times and raise the labor productivity of workers by 30-40 percent.

With the development of combine excavation on longwalls, metallic supports began to be used successfully, which made it possible to broaden the area of application of the technique of roof control by complete caving-in. In 1960 the proportion of coal extraction from working faces by this method for the entire national coal industry reached 83 percent; in the Donets Basin it was 71 percent. At the same time the labor-intensiveness of work on timbering, control of the roof, and delivering lumber dropped by 32 percent and the expenditure of support materials decreased 40 percent.

Continued technical progress in working faces took the form of a transition to narrow-sweep excavation and full mechanization of coal extraction. By the late 1950's K-52 combines with drum-type working elements had been put into production. In the first half of the 1960's self-cutting KSh-type combines with bubble screw conveyor working elements operating in a shuttle pattern were developed. They adapted well to variable seam thickness and did not require special loading devices. At the present time the K-101, KSh-3, GSh-68, and K-120 combines with screw conveyors are produced for various conditions.

One of the progressive lines of development of narrow-sweep excavation was the use of planers. In 1964 the USSR began producing high-speed USB-type planing devices for level seams 0.9-1.7 meters thick; in 1967 the UST type came into production for very thin seams. Excavation by planing significantly enhances the production of large grades (lumps) of coal, so planing devices are basically used for mining anthracite.

The introduction of narrow-sweep excavation made it necessary to develop more productive scraper conveyors and to move them by machine. At the present time scraper conveyors up to 300 meters long are produced. They have productivity levels of up to 600 tons an hour with a total drive power of up to 180 kilowatts, conduits to hold the combine power supply cable, and plowshares to clean up coal left after the combine passes. The production of longwall conveyors with flat drive heads installed in drifts is being incorporated. This will make it possible for a combine to operate without preparing recesses.

In the late 1950's Mosbass mechanized timbering was developed in the USSR and later used as the basis for the OMKT mining complexes which include a KU-60 narrow-sweep combine, later replaced by the KSh, a portable conveyor, and mechanized supports. In the mid-1960's the KM-81, MK, and KM-87 complexes were developed for level seams with solid roofs. The OMKT, MK, and KM-87 mechanized complexes are used in underground mines in Bulgaria, Hungary, Romania, and Czechoslovakia. In the 1970's the KMK-97 and Donbass complexes were brought into production for thin, level seams no more than 1.2 meters thick, in addition to KGD and AShch complexes for steep seams, KM-87N complexes for inclined seams, and KM-87P complexes for difficult-to-control roofs. At the present time, new OKP-70 (see Figure 2 below), MK-75 (see Figure 3 below), and KMT (see Figure 4 below) mechanized mining complexes are working in Soviet underground mines.

Figure 2. The OKP-70 Complex of Equipment.

During these 30 years while coal extraction has risen steadily the number of working faces has been systematically reduced. As a result, the load per face has increased 3.9 times and labor productivity has risen 2.6 times. In 1979 65.3 percent of the coal from underground faces was extracted by means of complexes. The workload per mechanized face was 1.7 times the average for all working faces and labor productivity per worker was 1.6 times higher (see Figure 5 below).

The introduction of mining complexes led to widespread competition among machine operators to achieve a workload of 1,000 tons a day and more on a working face. This form of competition arose in the mines of the Donets Basin and quickly became a mass movement for highly productive use of the machinery and achieving maximum labor productivity in all the country's coal basins. The "1,000 ton" movement took in everything that was good and valuable from the socialist competition of past years. Among the originators of the movement

Figure 3. The MK-75 Mechanized Mining Complex.

were the collectives headed by the nationally famous brigade leaders M. Chikh, I. Strel'chenko, N. Putroy, A. Akimov, and G. Motsak. In the early days of the movement, in 1967, there were just 23 "1,000-ton brigades"; in 1979 there were 449 of them. The work indicators of brigades and sections that extract 1,000 tons of coal (shale) a day and more are given in Figure 6 below.

Figure 4. The KMT Complex of Equipment

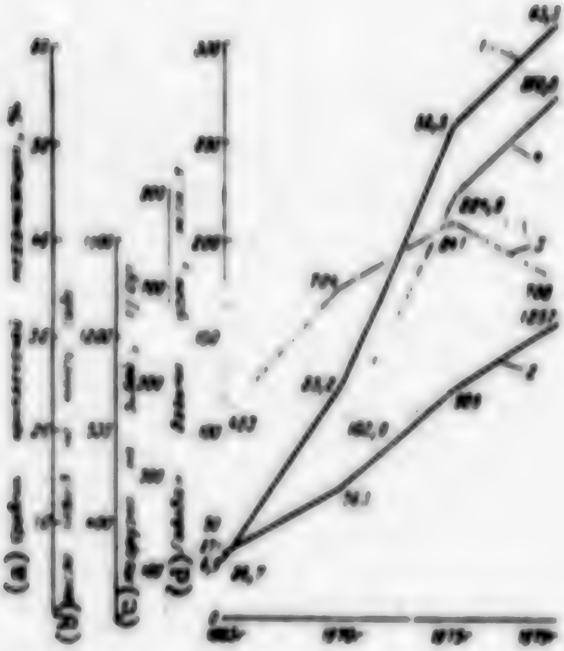


Figure 5. Primary Work Indicators of Fully Mechanized Working Faces.

Key: (1) Full Mechanization;
(2) Number of Working Faces (at Year's End);
(3) Load per Face;
(4) Annual Coal Extraction;
(a) Level of Full Mechanization, %;
(b) Number of Faces at Year's End;
(c) Load per Year, tons/day;
(d) Annual Coal Extraction, millions of tons.

At the present time competition has developed broadly to extract 500,000 tons of coal a year and more. There are 99 collectives participating and in 1979 seven brigades exceeded the 1 million-ton mark. Comrade L. I. Brezhnev, General Secretary of the CPSU Central Committee and Chairman of the Presidium of the USSR Supreme Soviet called the remarkable movement of leading mineworkers a practical example of the communist attitude toward labor.

A rational work schedule is very important for intensification of coal extraction by the underground method. Until 1956 coal mining was carried on seven days a week with workers given days off on a sliding schedule. In 1956-1958 a transition was made to a continuous work week in the faces and in preparatory jobs with a reduced (up to six hours) working day. This significantly improved working and off-duty conditions for mineworkers.

In 1967 the coal industry began a gradual transition to the five-day work week with two days off; for underground mineworkers employed under difficult working conditions the transition was to a 30-hour work week. This made it possible to institute a precisely regulated four-shift schedule in underground mining with six-hours shifts, one allocated entirely for repair and preparatory work.

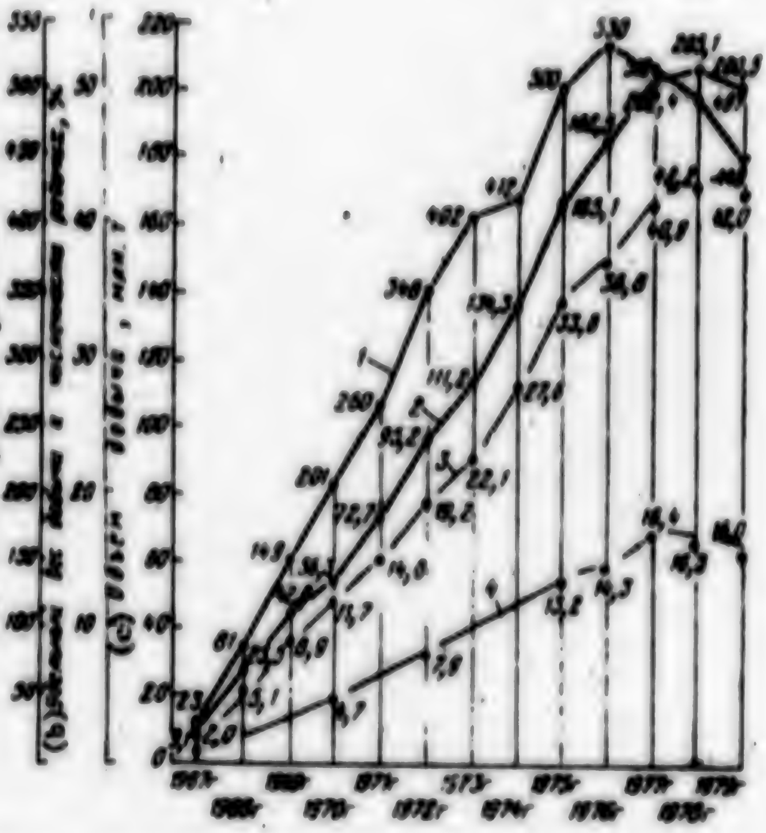


Figure 6. Work Indicators of Brigades and Sections Extracting 1,000 Tons of Coal (Shale) a Day.

Key:
- (1) Number of Brigades and Sections Extracting 1,000 Tons a Day and More;
- (2) Volume of Coal (Shale) Extraction from "Thousand-Ton" Faces, millions of tons;
- (3) Proportion of Coal Extraction from "Thousand-Ton" Faces in Total Extraction from Underground Mines;
- (4) Percentage of Workers in "Thousand-Ton" Brigades in Total Number of Underground Mineworkers;
- (a) Number of Brigades and Sections;
- (b) Percentage of Extraction and Number of Workers;
- (c) Volume of Extraction, millions of tons.

The broad introduction of mechanized complexes has created realistic prerequisites for solving the key scientific-technical, economic, and social problem of developing coal mining equipment that does not require constant human presence in the working faces. This equipment should be developed first of all for the most complex mining geological conditions (extremely thin seams, seams with high danger of sudden ejections of coal and gas, seams with major tectonic disturbances, and the like). This problem is being solved by devising automated complexes, auger drilling installations, and hydromechanical equipment and by searching for fundamentally new methods of coal excavation. The first experimental models of the KM-87A automated complex demonstrated the possibility of controlling the movement of sections of mechanized supports from a drift. Good results were also obtained during testing of the A-3 aggregate in the Kuznets Basin and the AK in the Donets Basin (see Figure 7 below).

Figure 7. The AK Complex.

The development of excavation machinery and improvement in the technology of work at the face demanded timely preparation of coal reserves for excavation. In the late 1950's and early 1960's the combine method of excavation was developed. During these years the PK-3 and PK-3m entry-cutting combines were built; after 1965 came the PK-9r, 4PU, 4PP-2, and GPK combines which were able to cut shafts at angles of up to 15-18 percent through rock with strength coefficients up to 6 on the scale of Professor M. M. Protod'yakonov. In 1979 the combine method accounted for 37.1 percent of this work. In addition, the blasthole method of excavating in hard rock has been improved; the BUE-1 and BUE-2 drilling rigs, the 2PNB-2B drilling and loading machine, automatic retarded blasting equipment, and other devices have been built.

Alongside improvements in shaft-cutting machinery various designs of metal and reinforced concrete supports have found broad application in underground mines. In 1979 they were used to reinforce 84 percent of all excavations.

The development of underground transportation followed in step with the pace of technical re-equipping of face and preparatory work. Conveyors were introduced broadly in horizontal and inclined excavations, as were heavy-duty locomotives and cars in the main transportation excavations. At the present time the mines are being re-equipped with band conveyors up to 1,800 meters long in horizontal excavations and 600-1,200 meters long in inclined shafts; their productivity is up to 800 tons an hour. The extent of introduction of conveyors reached 23 percent for horizontal excavations in 1979 and 85 percent for inclined shafts. With the increase in the productivity of the underground mines and intensification of work auxiliary transportation to deliver materials and equipment to the work site and to move workers around the mines became very important. Cable-driven monorails are now being introduced in the mines for this purpose along with equipment for delivering materials in containers and stacks. Technical re-equipping made it possible to reduce the labor-intensiveness of work in underground transportation by 39 percent between 1950 and 1979.

The increase in technical equipment in the mines has promoted an improvement in the working conditions of the miners. A program of measures was carried out to improve safety precautions and labor protection. Effective procedures for degassing seams are now used in the mines and more than 70 permanent and mobile cooling units have been put into operation. A great deal of work is being done to combat sudden discharges and dust. All these things have allowed a 74.8 percent increase in labor productivity during the period under study.

Great attention has been devoted in recent years to the development of open-cut (strip) mining. In the last 30 years the proportion of coal extracted by this method has risen from 10.7 to 36 percent. The no-transport system of mining using ESh-14/75 and ESh-15/90 draglines was introduced rapidly, chiefly in the eastern parts of the country; between 1950 and 1960 the share of this method rose from 10.2 to 30.7 percent.

Rotary excavators began to be introduced at open-cut coal mines in the 1960's. The technical level of drilling equipment rose significantly. At the present time more than 50 percent of the total volume of drilling in overburden and coal is done by drilling machines with drag bits up to 160 millimeters in diameter. The open-cut mines are receiving new types of drilling equipment: the 2-SBSh-200N and 3-SBSh-200N milling drill machines.

At the present time open-cut coal mines have more than 1,500 excavators, chiefly machine shovels with bucket capacities of 4.6-35 cubic meters. Highly productive rotary excavators are being introduced intensively (see Figures 8 and 9 below). At the present time they extract 41 percent of all coal mined by the open-cut method.

Transportation in the open-cut mines is developing in the direction of an increase in the unit capacity of means of traction and the load capacity of dumpcars and trucks. Dumpcars with load capacities of 100 tons and more comprise 54 percent of the total rolling stock. During the Ninth and 10th Five-Year Plans the fleet of dumptrucks has been supplemented by BelAZ-540 and BelAZ-548 dumptrucks with load capacities of 27 and 40 tons. Dumptrucks and special coal trucks with load capacities of 65 and 120 tons respectively are being incorporated.

Measures to implement scientific-technical advances at the open-cut coal mines made it possible to raise the labor productivity of a worker from 96.3 tons a month in 1950 to 449.9 tons a month in 1979.

Figure 8. Rotary Excavator with Productivity of 500 m^3/hr.

A great deal of work has been done in the area of coal processing. In 1950 the country had only 47 concentrating factories; in 1979 the total number had risen to 141 and the annual capacity of one factory increased from 549,000 to 2,145,000 tons of coal. In addition the underground and open-cut mines now operate 39 mechanized rock sorting units which processed 41.7 million tons of coal in 1979.

Coal concentrating is a focus of attention in the basins of Siberia and the Far East: Kuznets, Krasnoyarsk, East Siberia, and Sakhalin. The volume of coal processing in the Kuznets Basin today is 4.3 times more than in 1950. The Pechora Basin now has 11 operating factories while the Karaganda has seven and by 1981 plans to complete construction of one more factory with a capacity of 6 million tons a year. The volume of concentrating at factories in this basin will increase by more than eight times.

The rate of development of coal concentrating has been especially high in the last decade. The factories today are equipped with the latest machinery and operate with progressive, highly efficient technology: concentrating in heavy media, flotation, and jigging. There are more than 70 factories and installations operating with heavy media separators. Technology has been mastered for concentrating fine classes of coal in heavy media cyclones which afford high technical-economic indicators. Fifty-two factories use flotation. The share of jigging among all concentrating processes has risen to 52 percent through broad introduction of jigging machinery in place of washing spouts and pneumatic separators.

The water-slag systems of the factories are being improved by the development of wet gravitation processes of concentration and flotation of coal slags. New flotation-filtering divisions are being built and existing ones expanded,

Figure 9. ERShRD-5000 Rotary Complex at the Bogatyr' Mine.

the water-slag cycles are being closed, and single-stage plans with flotation of diluted pulps are being introduced. As a result not only has the production of slag as a commodity product been eliminated, but the concentration of solid slag in circulating waters has been reduced, thus raising the efficiency of other technological processes.

Water-slag systems using mechanized filter-presses to remove water from flotation by-products have begun to be incorporated to eliminate silt accumulators, which are a source of contamination for considerable land areas, from the technological complex. This makes it possible to put flotation waste products in dry heaps together with the rock.

Fifty-seven concentrating factories use drying installations that dry more than 48 million tons of coal. Coal drying insures that the concentrate shipped to users has the certified moisture content. In the thermal drying divisions a dust trapping system is envisioned that prevents contamination of the air basin.

A technology has been developed and introduced in recent years for concentrating impoverished coals in a water medium using steeply inclined KNS-type separators. This makes it possible for the national economy to use millions of tons of coal that was formerly lost with the rock. Considerable attention is focused on automating control of the technological processes of concentrating.

The coal concentrating factories of the USSR Ministry of Coal Industry today are large highly mechanized enterprises and the modern technological schemes they use insure high technical-economic work indicators. Despite increase in the ash content of the coals received at the enriching factories of the USSR Ministry of Coal Industry (from 17.7 percent in 1950 to 25.2 percent in 1978) they are successfully meeting one of the principal challenges of the coal industry and delivering high-quality solid fuel to metallurgy, the power industry, and other users.

The value of the fixed capital of the USSR coal industry reached 20 billion rubles in 1978 as the result of steady growth in the volume of coal extraction and technical re-equipping. It has increased 2.8 times in just the last 18 years. Intensive technical re-equipping of enterprises and preferential development of the open-cut method of coal mining have led to a more rapid growth in the active part of fixed capital compared to passive, an increase of 21 percent between 1960 and 1978.

The increase in the value of fixed capital has been accompanied by a significant rise in the level of the capital-labor ratio; this has promoted a rise in labor productivity. In 1979 the labor productivity of a coal extraction worker at 33 underground mines exceeded 100 tons a month; at the Zarechnaya mine of the Gidroulgol' Association this figure reached 161.4 tons a month, at the Vorgashorskaya mine of the Vorkutaugol' Association — 151.9, at the Raspadskaya mine of the Yuzhkuzbassugol' Association — 139.9, and 158.3 tons a month at the Podmoskovnaya mine of the Novomoskovskugol' Association. The collectives of 393 extraction sections reached and surpassed the 1,000-ton workload per working face per day in 1979.

At the same time, the increase in the number of workers related to the transition to the 30-hour work week and the worsening of mining geological conditions at underground coal mines (increase in the depth of mining and abundance of gas, worsening of climatic conditions, and the like) have led to a slight decline in labor productivity in recent years.

Technical progress, improving the organization of production and labor, and the rise in the general and specialized educational level of workers and engineering-technical personnel foreordained continued economic and social changes in the sector. One of the primary directions of these changes was an improvement in the wage rate system as the foundation for state regulation of wages and the organization of labor quota work and wage payments in order to increase the material incentive of employees to fulfill production plans, raise labor productivity, and improve the quality indicators of sector work. Much attention here was devoted to improving wages in conformity with the level of labor organization, taking into account characteristics of the sector, the qualifications of employees, and production conditions. Standard output norms for piece-rate workers and numerical standards (or service norms) for time-rate workers have been ratified for all basins of the country. The first steps are being taken to switch the workers of fully mechanized working and preparatory faces to aggregate norms. The progressive piece-rate system that was used until 1958 was replaced by a piece-rate and bonus system that makes it possible to increase the incentive of employees to fulfill and overfulfill the production plan for the brigade, longwall, and section, raise labor productivity, and improve the quality indicators of work, that is, to encourage emphasis on the final, collective results of labor. The system of organization of wages for engineering-technical personnel is being improved by further differentiation of position salaries depending on the difficulty of the job performed. The bonus payment system not only considers the quantitative and qualitative indicators of enterprise work but is also coordinated with the delivery of coal to customers.

A great deal of work is being done to further refine the economic framework of the coal industry in conformity with the decree of the CPSU Central Committee and USSR Council of Ministers entitled "Improving Planning and Strengthening the Influence of the Economic Mechanism on Raising Production Efficiency and Work Quality." It is essential to improve the entire system of long-range and current planning, enhance the role of economic norms and standards, complete the transition to direct long-term economic links among enterprises, insure stability and sound substantiation for plan assignments, and take various steps to accelerate the introduction of production capacities, raise the efficiency of capital investment, develop cost accounting (khozraschet) at enterprises and organizations, and strengthen the role of economic levers and stimuli.

Among these measures are further improvements in methods of economic stimulation and switching scientific research organizations to the cost accounting system of organizing work on the development, production, and introduction of new technology. At the present time the system of the USSR Coal Ministry has 36 scientific, planning, and design institutes and 50 experimental plants and enterprises. In addition, more than 300 organizations of other ministries and departments take part in solving sectorial scientific and design problems. Scientific and planning-design development work encompasses the problems of concentrating mining work, improving the mining system, full mechanization and automation of production processes, scientific organization of production and labor, and so on. The research done in the sector in the Ninth Five-Year Plan alone produced an economic impact of 630 million rubles.

The Soviet State shows constant concern for improving the working and everyday conditions of miners and their families. Systematic steps are taken to protect labor and improve working conditions, provide better medical-sanitary and domestic services, and to automate and mechanize industrial processes. In the first four years of the 10th Five-Year Plan alone more than 500 million rubles was spent to protect labor and improve working conditions for miners. Each year the sector builds up to 2 million square meters of well-planned apartments. More than 150,000 workers and employees rest and receive medical treatment at 150 sanitariums. The mineworkers have more than 800 clubs and houses and palaces of culture, more than 3,000 red corners, and hundreds of movie installations and libraries. The mineworker cities and communities have 2,030 nursery schools and daycare centers. In the summer more than 20,000 children take vacations at suburban dachas and about 250 Pioneer camps have been organized for school children. Further improvements in the working and everyday living conditions of the workers of the sector are planned in the 11th Five-Year Plan.

The USSR Ministry of Coal Industry and its organizations carry on close bilateral and multilateral cooperation with similar organizations in the CEMA countries on many problems. The key problems are defined in the documents "Comprehensive Program for Further Deepening and Refinement of Cooperation and Development of Socialist Economic Integration Among the CEMA Countries" and "Long-Term Target Program of Cooperation To Supply the Economically Substantiated Needs of the CEMA Countries for Energy, Fuel, and Raw Materials Until 1990." These documents envision broad participation by the CEMA members in multifaceted steps toward specialization and cooperation in production, development of scientific-technical problems, and cooperation in the development of the fuel and energy sectors, which includes development in the less economically developed CEMA countries and aiding them in exploration for and exploitation of raw material, fuel, and energy resources. Among the challenges of scientific-technical progress in the coal industry of the CEMA countries in the future are intensification, increasing the scale, and raising the efficiency of production and concurrently solving key social problems: the elimination of heavy manual labor, insuring safe working conditions for mineworkers, and protection of the environment.

The USSR is giving technical aid to the various CEMA countries in geological exploration, planning, construction, equipment delivery, operation of coal industry enterprises, and performance of scientific research. The mines of Bulgaria, for example, receive mining equipment and institutes of the USSR Ministry of Coal Industry in 1979 began performing scientific research, planning, and experimental design projects related to development of the Dobrudzha deposit, which is very important for the Bulgarian economy but at the same time very complex from the standpoint of tectonics, hydrogeology, and the depth of the seams. Original technical concepts and development of special equipment will be required. The Soviet Union is giving Hungary technical assistance in the construction of four underground coal mines with a total capacity of 7.8 million tons a year. In Vietnam the Kokshau, Khatu, and Deonay open-cut coal mines, a machine repair plant, and other enterprises have been planned and launched in operation on the basis of plans developed by Giproshakt [USSR State Institute for the Planning of Mines]. Construction is continuing on the Kaoshon open-cut mine and the second phase of the Vangzan' underground mine and concentrating factory. The flooded Mongzyong mine is being restored. In Mongolia the Nalaykha-Kapital'naya underground mine and the Sharyngol'skiy and Adun-Chulunskiy open-cut mines were built with technical assistance from the Soviet Union.

Scientists at the Mining Institute imeni A. A. Skochinskiy (USSR) and the Bulgarian planning institute MNIPKI Minproyekt jointly developed and built the KSBD-3 (Bulgarian-Soviet Friendship Complex No 3) shaft-cutting complex for work in thick, steep seams under difficult mining geological conditions.

Specialists from ShakhtNIUI [Shakhty Scientific Research, Planning, and Design Institute of Coal, USSR] and the Ostroy Concern of Czechoslovakia developed and built the KTSCh (Soviet-Czechoslovakian Technological Complex) planing complex to mechanize the mining of thin seams lying at angles of up to 35 degrees. The complex has gone through testing successfully at Soviet and Czechoslovakian mines.

Among the concrete problems developed recently on the basis of multilateral cooperation within the framework of the CEMA Standing Commission on the Coal Industry which are of interest to our country's coal industry we may note the following:

- the principal directions of scientific-technical cooperation among the CEMA countries until 1990 have been determined on the basis of a forecast of the development of science and technology in the coal industry until the year 2000;

- work is underway as envisioned by multilateral agreements to improve technology and build equipment for full mechanization of the exploitation of thick, steep and fairly level coal seams, automate the processes of production and control in open-cut mines, mechanize and automate engineering calculations in the design of underground and open-cut mines, and so on;

- the recommendations of specialists from the CEMA countries have been used in working out technical documents and producing continuous-operation excavators, devising diagrams for cyclical-flow and flow technology, and selecting initial data to substantiate the essential equipment for the Kansk-Achinsk coal basin;

- methods to restore land disturbed by mining operations are being improved and steps are being taken to reduce water contamination in the production process;

- an analysis has been made of coal concentrating technologies and recommendations made on improving them, technical requirements have been developed for the basic equipment of concentrating factories: jigging and flotation machines, equipment for coal preparation and dehydration, and work is being done to refine the technology and equipment used for making brown coal briquettes;

- based on recommendations of specialists from the CEMA countries the Sukhodol'skaya automated control system for industrial processes at concentrating factories has been formulated, systems have been introduced into production at anthracite concentrating factories to clarify fine slags using polyacrylamide in deep cones. The technical-economic efficiency of this method is significantly higher than current methods of clarifying slag the specific load on cone-type condensers is 2-2.5 times greater than for radial condensers;

- based on recommendations by the CEMA countries PVTs battery-type dust traps have been built and introduced at the Bryankovskaya and Uglegorskaya central concentrating factories and wet-process MPR dust traps at the Sudzhenskaya concentrating factory, the Tomusinskaya state concentrating factory, and the Donetskaya central concentrating factory with productivity levels of 100,000-125,000 cubic meters an hour of decontaminated gas; at the drying installations of the Donetskaya, Bryankovskaya, and other central concentrating factories dust trap systems that meet the requirements of existing sanitary norms have been installed; at the Saranskaya central concentrating factory a horizontal multilevel 4.5 x 2 GOE electric filter has been installed to trap dust;

- band-type vacuum filters with a filtration area of 10 square meters to remove water from flotation tailings have gone through industrial testing and been introduced at the Bryanskaya and Krivorozhskaya concentrating factories;

- an installation that uses the wet method of sulfur removal and reduces the sulfur content in energy coals has been introduced at concentrating factories.

In the last decade a need has arisen to supply energy resources for the growing needs of the CEMA countries. To conserve organic fuels whose resources are not replaceable, existing methods have been improved and new efficient methods developed for processing coals to make liquid, gaseous, and more easily transportable solid fuels. Scientists of the CEMA countries are cooperating in the search for new ways and equipment for efficient use of solid fuel. New technologies and equipment designs are being developed, including chemical processing of coal to make liquid fuel and gas, in particular mazut oil for heating and motor fuel. Methods are being developed of obtaining high-quality fuel from fine classes of coal and producing smoke-free fuel (including for domestic needs) and metallurgical fuel to expand coking raw materials, obtain non-blast coke for the chemical industry, and produce ferroalloys and ore agglomerate. An agreement has been concluded between the USSR and Poland on cooperation on questions of processing coal for liquid fuel.

The cooperation of the CEMA countries in the field of coal machine building is directed to more fully satisfying their needs for the most important types of mining equipment and joint construction of specialized plants to produce hydraulic equipment, industrial rubber goods, and plastic items for mining machines. Agreements have been prepared for joint construction, within interested countries, of the appropriate plants in USSR territory and for specialization in the production of concentrating equipment.

An international sectorial system of scientific and technical information called "Informugol'" has been in operation since 1974. Through it the CEMA countries exchange information on the most important projects and advances in improving technology, machinery and equipment, and management of the sector and disseminate progressive know-how. A monthly information bulletin is published, named NOVOSTI ZARUBEZHNOY UGOL'NOY PROMYSHLENNOSTI.

On questions of labor safety and the operations of the mine rescue services the CEMA countries have an agreement which provides for comradely mutual help in preventing accidents and giving aid to miners struck by disaster. In addition, the countries will help each other supply mine rescue stations with essential equipment and means of transportation and raise the qualifications of mine rescue teams.

The further development of the USSR coal industry will follow the path of increasing the share of open-cut mining in the Ekibastuz, Kansk-Achinsk, and Kuznets basins, where mines with an annual production of 30-60 million tons are to be built.

Accelerated development of the Kansk-Achinsk and Ekibastuz fuel-energy complexes, including enterprises to extract, process, and liquefy coal, is planned. Rotary excavators with productivity levels of 2,500 and 5,000 cubic meters an hour, and in the future 12,500 cubic meters an hour, will be used at open-cut mines in the Kansk-Achinsk fuel-energy complex.

To minimize the impact of factors that have a negative effect on coal extraction in underground mines, plans envision raising the level of full mechanization of face work in these seams to 70-72 percent, raising the level of mining excavation by combines to 42-45 percent, and building shaft-cutting combines that can work in rock with strength values up to f = 10.

In open-cut mines the following steps are envisioned: raising the share of extraction by rotary excavators to 50 percent, introducing new models of single-bucket excavators with bucket capacities up to 20 cubic meters, introducing draglines with bucket capacities of 40, 75, 100-120 cubic meters and boom lengths of 55-120 meters, introducing traction units with hitched weights of 360 and 372 tons, dumpcars with load capacities of 165 tons, self-unloading railroad cars with capacities of 140 tons, and special coal trucks with capacities of 75, 110, 120 and 180 tons.

Further development of scientific-technical progress in the coal industry, improving economics and management in the sector, and close, mutually advantageous cooperation among the CEMA countries will make it possible to meet the challenge of supplying the USSR economy with fuel and valuable industrial raw material.

Mineworkers enthusiastically welcomed the resolutions of the June 1980 Plenum of the CPSU Central Committee and the news of the convocation of the 26th CPSU Congress. The labor collectives of the sector are now engaged in socialist competition to celebrate this portentous event in the life of our country in a worthy fashion. The working people are assuming obligations to increase coal extraction, raise labor productivity, and step up the introduction of scientific and technical advances into production.

> "The past decade has been marked by continued development and enrichment of cooperation among the countries of the socialist community. This cooperation is a mighty tool to accelerate the development of each of the fraternal countries" — L. I. Brezhnev

COPYRIGHT: Izdatel'stvo "Nedra", "Ugol'", 1980

11,176
CSO: 1822

FUELS

KRYLOV FORESEES INCREASED SOVIET OIL PRODUCTION

Moscow MOSCOW NEWS in English No 38, 28 Sep-5 Oct 80 p 12

[Interview with Alexander Krylov by Alexander Guber, date and place not given]

[Text]

"Analyzing why I was deliberately misquoted by the Western press is not my profession," the Academician said. "It would be simpler for me to describe what the Soviet oil industry is really doing."

As our talk with the Academician revolved around prospects, a few words are in order about the present situation.

Oil is our epoch's main fuel and chemical raw material. Because its resources are limited, scientists are looking for something that can replace it. But they haven't found it yet. No country can exist without oil now, nor will they in the conceivable future. So alongside the search for alternate fuels, we have to produce oil, and increase production at an economically acceptable cost. This is what Alexander Krylov has dedicated his life to.

Last year the Soviet Union produced 586 million tons of oil and ~~gas condensate — 80~~ million tons more than in 1975. The increase alone is nearly triple the production of prewar 1940.

However, these impressive figures, and the Soviet Union being the world's leading oil producer should not conceal the serious problems.

In three years, the cost of producing a ton of oil has risen 20 per cent. In five years, the cost of equipping each well went up 33 per cent. Oil now has to be pumped three times further on the average than 15 years ago. Investment in the oil industry between 1976 and 1980 is 50 per cent higher than in the previous five years, and over double that of 1966-1970.

In short, inputs are rising much faster than outputs.

What can be done about this negative development? Is oil becoming an excessive luxury?

"This trend is indeed alarming," Krylov said. "Up to this point, even with all these increased inputs involved in the oil industry, we can live with the situation. But if this growth continues at the same rate, the situation will change. Why is oil production becoming less cost-effective? Certain factors are known to everyone: we have to drill deeper and travel farther, to undeveloped areas where the climate is miserable; the depletion of conveniently located and rich fields forces us to turn to those less profitable."

Q.: These factors hold true everywhere. So what is the specific feature of the Soviet position?

A.: The thing is that we have real possibilities of minimizing these negative developments. Our main potential is in the strategy of developing the oil fields.

Q.: What are you alluding to?

A.: In the end run, the effectiveness of oil production depends not only on natural conditions — which are not at all the same in different areas of the country — but also on production technology and, primarily, upon the system of developing the oil fields.

Q.: Is this to mean that there may be different ways of developing oil fields?

A.: Exactly. Thus, more than 30 years ago an integrated approach was suggested, which is not only based on geological factors. It involved an analysis of the filtration of productive layers and the economic consequences of using different systems of development.

Q.: What did it lead to?

A.: It enabled us to introduce some effective modernizations. Most important among them involved the density of the well grid, which was sharply reduced; previously, we would have a well per every two to six hectares. Then, in the new system, it was one per every 20, and now it is one for every 50 hectares and even more. This was done by artificially maintaining the pressure in the layer by pumping in water to force the oil out.

By reducing the number of wells, we increased the reserves behind each one of them, and thus stabilized yields and increased the productive life. The pumping in of water helped intensify the development and get more of the oil out.

We began doing this on a broad scale in 1950 and with comparatively small investments production began quickly increasing.

Q.: What would happen if we abandon the innovations and go back to the old technology?

A.: The cost-effectiveness of oil production will begin declining. Each well will produce less oil. We will have to quickly sink more wells, while obtaining less and less from each. If we add the gradual deterioration of the natural conditions in which oil is found and the technical and economic impossibility of endlessly increasing the scope of drilling, we could first have a declining growth and then even an absolute decline in oil production.

Q.: How can we avoid this?

A.: We should use rational systems of oil technology and spread our investment in the best way among the different oil-bearing areas of the country. Given our natural resources and technical potential, we can, without overly large investment, continue to increase oil production.

Q.: Which are the areas that you think should be given priority?

A.: Today and in the most immediate perspective — Western Siberia.

Q.: How can this be done?

A.: By rechannelling resources. We have to send Siberia the machinery which now goes to other areas, and if necessary, even move the drilling rigs and teams to Tyumen from the European part of the country.

Q.: Isn't this already happening?

A.: Yes, but not to the extent needed. Teams from the Volga areas and other parts are assigned to Siberia for short-term duty, but the newcomers are not nearly as productive as the local drilling teams because they're unfamiliar with the climate and geological conditions. They need time to adapt. But they don't get it—as soon as they get used to the place, it's leaving time.

Q.: Will the scope of drilling in Siberia be extended at the expense of other areas, such as those between the Volga and the Urals?

A.: The idea is to use what we already have more rationally.

Q.: But the Volga regions are much nearer to the big oil consumers than Western Siberia. Besides, they don't have such a shortage of manpower, housing or roads. Wouldn't the proposed realignment be too expensive?

A.: The integrated approach, which I advocate, embraces the consideration of all factors, including the ones you mentioned. The growth rate and the scope of production in every area should be carefully planned, an overall plan should be based on the optimum model for the development of the oil industry as a whole.

Q.: Do you think that excessively intensive development could exhaust West Siberian oil reserves prematurely?

A.: Any oil field is bound to run out sooner or later. What I mean is not excessive, but rational intensity, whose level has to be determined as part of a scientifically based system for the development of West Siberian oil.

Our known reserves should last for years. Further development will be determined by the scope of not only commercial drilling, but exploration. This volume should be as large as possible.

Q.: Who determines the volume?

A.: I am for a clear-cut division of labour between the geologists and the oil technology experts. The geologists' job is to find the oil, and the experts' job is to get it out. Each demands specialized knowledge and skill.

It seems that the ignoring of this principle in the past decade led to some miscalculations. There were more wells sunk in the old oil-bearing areas than necessary. The yield per well dropped, average effectiveness was reduced, and the productive life of each well decreased. If this continues, we would have to double the number of wells in the next ten years just to maintain the present production level.

Q.: I sense you don't think this is necessary?

A.: As I see it, we don't need more wells, but more oil per well (of course, in economically feasible limits). Besides this, the wells have to be sunk only where there is a good chance of meaningful production. This will probably have to entail a certain reorganization in the industry.

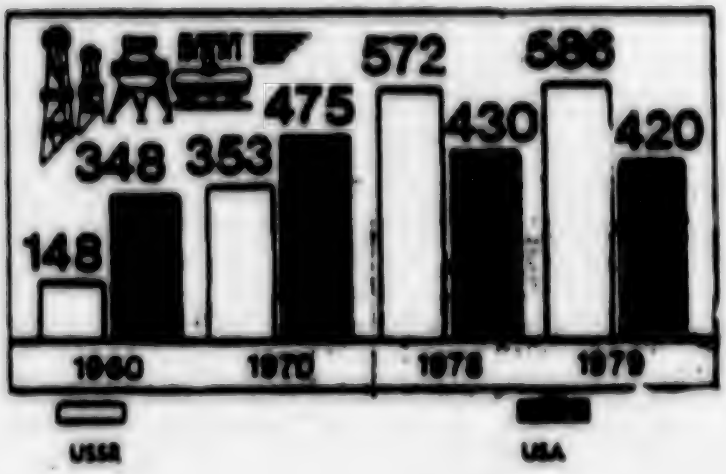
Q.: In other words, it's not nature, but us upon whom things depend.

A.: There is no call to complain about nature — it has generously given our country practically all necessary resources. We can continue to increase oil production, and we know what we have to do to achieve it.

Interviewed by
Alexander GUBER

OIL AND GAS CONDENSATE PRODUCTION IN THE USSR AND THE USA

(in mln tons)



CSO: 1812

UDC 621.643/.553.002.2

USSR ASSISTS OTHER COUNTRIES IN DEVELOPING THEIR GAS INDUSTRIES

Moscow STROITEL'STVO TRUBOPROVODOV in Russian No 8, Aug 80 pp 4-6

[Article by A. I. Sorokin, deputy minister of construction of petroleum and gas industry enterprises of the USSR: "Weighty Contribution to Strengthening Ties with the Developing Countries"]

[Text] The Ministry of Construction of Petroleum and Gas Industry Enterprises is continually directing its efforts to expanding the scales and increasing the efficiency of economic cooperation with foreign countries. This cooperation is reflected both in the rising volume of construction abroad of oil and gas facilities on contract conditions as turn-key operations, and the rendering of technical assistance (conducting of joint scientific research work, sending of specialists, organization of exhibitions of construction machines and equipment).

The experience of the ministry's work abroad already has a more than 15-year history. Over 40 oil and gas facilities have been built in 14 countries on contract conditions or with the technical cooperation of the branch organizations.

The foreign economic activity of the ministry is primarily directed towards strengthening multilateral ties with the socialist states. These ties have a constant, close and mutually advantageous nature.

The subdivisions of the ministry, or with their cooperation with organizations of the fraternal socialist countries have built a number of major facilities of the oil and gas industry. Among them are the system of oil pipelines "Druzhba" that stretches over 6,000 km ensuring the delivery of Soviet oil to Hungary, Czechoslovakia, Poland and the GDR; the main gas pipeline "Bratstvo" (450 km) that supplies gas from the USSR to Czechoslovakia; the USSR-People's Republic of Bulgaria pipeline systems (about 1,000 km) to transport Soviet gas to the People's Republic of Bulgaria through the territory of Romania, the USSR-Hungarian People's Republic line stretching 235 km, and others. The ministry has rendered technical assistance in the construction of the bulk plant in the Mongolian People's Republic, petroleum product lines and oil storage facilities in the Socialist Republic of Vietnam, and development of gas fields in the GDR.

Within the framework of the intergovernmental agreement on deliveries of Soviet natural gas the Ministry of Construction of Petroleum and Gas Industry Enterprises has built a pipeline extending 160 km and a gas-measuring station in Finland on contract conditions.

The cooperation with developing countries of Asia and Africa occupies an important place in the foreign economic ties of the ministry. This cooperation is directed towards development of a national oil and gas industry, and strengthening of their economic potential.

In Iran contract conditions were the basis for the construction of the northern section of the Transiranian main gas pipeline (with outlet to Teheran) of total length 600 km, 8 compressor stations, and a gas-measuring station.

A number of facilities have been constructed in Iraq that have laid the foundation for the development of a national sector of the oil industry. They include three phases of the Severnaya Rumeyla oil field with total output of 42 million T of oil per year, the oil pipeline Severnaya Rumeyla-Fao port extending 140 km, the oil fields Nakhr-Umr and Lukheya with total volume of the annual output 4 million T of oil, the Bagdad-Basra petroleum products pipeline (540 km), and Severnaya Rumeyla-Nasiriya gas pipeline (about 140 km). An industrial complex is currently being made to inject water into the Severnaya Rumeyla field with output of 120 million m^3 of water per year and the bulk plant of Novyy Kar'kh with tank capacity of over 17,000 m^3. Preparation is underway for the realization of a number of major new projects.

Construction has been completed in Nigeria of complicated engineering structures of two petroleum product pipelines extending over 900 km with 9 pumping and measuring stations. A gas pipeline 570 km long has begun to be laid in Libya and construction of a compressor station is being prepared. Organizational preparation is underway for construction of three bulk plants with capacity of about 30,000 m^3 on the territory of Angola. In Algeria it is planned to participate with the organizations of the branch in building main gas pipelines extending about 1000 km and 6 compressor stations.

The ties with the Democratic Republic of Afghanistan (DRA) play an important role in the cooperation of the Ministry of Construction of Petroleum and Gas Industry Enterprises with the developing countries.

The establishment and development of a gas industry in Afghanistan is linked to the discovery of the Shiberganskiy group of gas fields located in the northern section of the country. The Shiberganskiy group includes four fields: Khodzha-Gugerdag, Dzharkuduk, Khodzha-Bulan, and Yetym-Tag.

The first gas field of Khodzha-Gugerdag was built up with the technical assistance of our ministry and was put into operation in October 1967. The field's output is 2.5 billion m^3 gas per year.

In order to supply the Afghan gas to the USSR a gas pipeline extending about 100 km, 820 mm in diameter with working pressure of 5.39 MPa was laid in 1967 from the region of extraction to the Soviet-Afghan border. In addition, an outlet was constructed that was 88 km long, 325 mm in diameter to the plant of nitrogen fertilizers in Mazari-Sherif.

In 1974 construction was completed on contract bases of an overhead (guy wire) transfer of the main gas pipeline over the Amudar'ya River. The guy wire system and the rigidity beams were secured to shore pylons 80 m high with free span of 660 m. One branch of the gas pipeline 820 mm in diameter and two communications lines were laid on the transfer. Introduction of the facility guaranteed reliable supply of Afghan gas to the USSR.

The second gas field Dzharkuduk that is included in the Shiberganskiy group was built up in 1977-1979.

The creation of the Dzharkuduk industrial complex in the same way as the construction of the other facilities of the gas industry was carried out by the Administration of Construction created in the Democratic Republic of Afghanistan. Over 450 Soviet specialists and over 900 Afghan workers worked in the administration. Specialized subdivisions for construction of the linear section of pipelines, installation of technological pipelines and equipment, for thermal treatment, as well as a mechanization base, shop of intermediate products, and autotransport service were set up to fulfill the adopted commitments. The general construction work on subcontract conditions was carried out by the local construction firm.

A feature of the gas in the Dzharkuduk field is its content of aggressive components, namely, hydrogen sulfide and carbon dioxide. This made it necessary to build complex purification units at the field. Auxiliary structures were erected in addition to the main facilities. Gas from the wells passes through underground loops 168 mm in diameter stretching a total of over 140 km. It is collected at the main structures where it is exposed to complex treatment, including preliminary preparation, purification of hydrogen sulfide and carbon dioxide, and low-temperature separation.

Then the gas passes on the pipeline to the main structures of the Khodzha-Gugerdag field where it is mixed with the gas flow of this field. It is further sent to the Soviet Union on the Afghanistan-USSR pipeline.

Up to 2 billion m^3 of gas will be extracted annually at the field.

With the introduction of the Dzharkuduk complex of structures gas extraction in the DRA doubled. The increase in extraction affords new possibilities for its greater use within the country, in particular, in order to produce nitrogen fertilizers and the daily needs of the population, and promotes a build-up of the energy base.

The triumphant opening up of the industrial facilities of Dzharkuduk took place in May 1980. The head of the Soviet government delegation, the minister of construction of petroleum and gas industry enterprises of the USSR B. Ye. Shcherbin, minister of mining and industry of Afghanistan M. I. Danesh, president of the oil company of Afghanistan Kh. Navabi, and representatives of the local administration, party organs, Soviet and Afghan workers were at the meeting dedicated to the putting of the new enterprise into operation. A high evaluation was given to the achievements of the collective of builders of the Dzharkuduk gas complex.

The complex engineering structures of Dzharkuduk are a bright symbol of proletarian internationalism in action, and living proof of the fraternal relationships between the peoples of Afghanistan and the Soviet Union.

Many leading workers of production who actively participated in the movement of "Facility as 'Turn-Key Operation'--Excellent Quality" were awarded honorary certificates of the USSR Embassy in the DRA, the Administration of Construction, valuable gifts, and were placed on the honor board of the administration. The following achieved high production indicators: bulldozer operator A. F. Utkin, driver R. M. Sharafetdinov, electric welder V. I. Igumnov, brigade foreman of installation mechanics V. V. Mel'nikov, brigade foreman of the complex installation brigade L. I. Prokopenko and many others.

The use of different forms of socialist competition promoted the timely completion of the construction and installation work. There were regular competitions for the title of best in the profession. Competition was widespread among the sections, individual brigades and production subdivisions to fulfill the adopted commitments and the counterplans.

The results of the competition were regularly summarized by the appropriate commission made of representatives of the administration, party, trade union, komsomol organizations and the public.

In 1979 in the pre-start-up period the competition of subdivisions was held based on weekly-daily assignments and the results were evaluated daily.

The organization of the competition and the use of its different forms promoted the attainment of positive results and the creation of worker enthusiasm in the collective.

The Soviet specialists generously pass on to the Afghan workers their knowledge and practical experience, and the leading methods of work. During the period of build-up of the Dzharkuduk field about 250 Afghan workers were trained in the administration in different occupations. In addition, during the construction and putting into operation of the facilities there was a constant on-the-job training of the Afghan personnel who had to operate the field.

The Ministry of Construction of Petroleum and Gas Industry Enterprises is currently building in Afghanistan on contract conditions an additional section of the main Afghanistan-USSR gas pipeline that extends 51 km. It is also constructing a set of facilities to expand the Khodzha-Gugerdag gas field and after-compressor station of the Afghanistan-USSR gas pipeline.

The organizations of the branch that are working abroad demonstrate the latest achievements of domestic practice in construction and actively utilize the leading foreign experience. All of this permits them to fulfill their commitments in time and with a high quality.

The fruitful results of the foreign economic activity of the Ministry of Construction of Petroleum and Gas Industry Enterprises are reflected in the constantly rising volume of suggestions for construction that comes from the foreign firms and organizations.

The Ministry of Construction of Petroleum and Gas Industry Enterprises will further perfect its activity abroad in order to increase the effectiveness of the foreign economic cooperation of our country in the oil and gas industry.

COPYRIGHT: Izdatel'stvo "Nedra" "Stroitel'stvo truboprovodov", 1980

9035
CSO: 1822

UDC 553.981

AZIMUTHAL TRENDS OF SOVIET GAS DEPOSITS ANALYZED

Moscow GAZOVAYA PROMYSHLENNOST' in Russian No 8, Aug 80 pp 26-28

[Article by G. P. Tamrazyan and S. T. Ovnatanov (of the Armenian Geological Society and VNIIOENG [All-Union Scientific-Research Institute for the Organization of Management and the Economics of the Oil and Gas Industry]): "Peculiarities in the Distribution of the Trends of USSR Gas Deposits"]

> [Text] A knowledge of the basic trends of gas deposits and a consideration of them can help to reduce the costs of prospecting, exploring and developing gas fields.

The distribution of gas deposits according to their orientation has not been described up to now for the USSR as a whole or for many of its gas-bearing regions. Meanwhile, this question is of exceptional importance in working out the economics of better-substantiated guidelines for prospecting and exploring in the various gas-bearing regions.

We examine within USSR territory the orientation of gas deposits for seven principal gas-bearing regions: West Siberia, the Timan-Pechora region, the Volga-Urals region, the Ukraine (the Dneprovskoye-Donetsk depression and the Carpathian area), the Crimea-Caucasus region (the Ciscaucasus, the Transcaucasus and the Crimea), Central Asia and Kazakhstan, and East Siberia.

All fields with initial natural-gas reserves of more than 10 billion m^3, and also fields with initial gas reserves of 1-10 billion m^3, were examined. Altogether we studied more than 440 fields—practically all of the USSR's gas resources.

In order to analyze the distribution of the trends of gas reserves, we single out 15 groups of azimuths (of 12 degrees each). They are broken down from west (270 degrees) through north (0 degrees) to east (90 degrees). The southern bearings are mirror reflections of the northern ones, preserving the corresponding orientation (for example, a southeastern orientation of 110 degrees is identical to a northwestern orientation of 290 degrees).

For purposes of averaging and obtaining systematic components, the method of averages moving along trigroups of azimuths is used. For greater reliability, the method of averages moving twofold along trigroups of azimuths is applied. This makes it possible to single out a systematic tendency in change of gas resources as a function of the azimuth of the strike of its deposits (see figure).

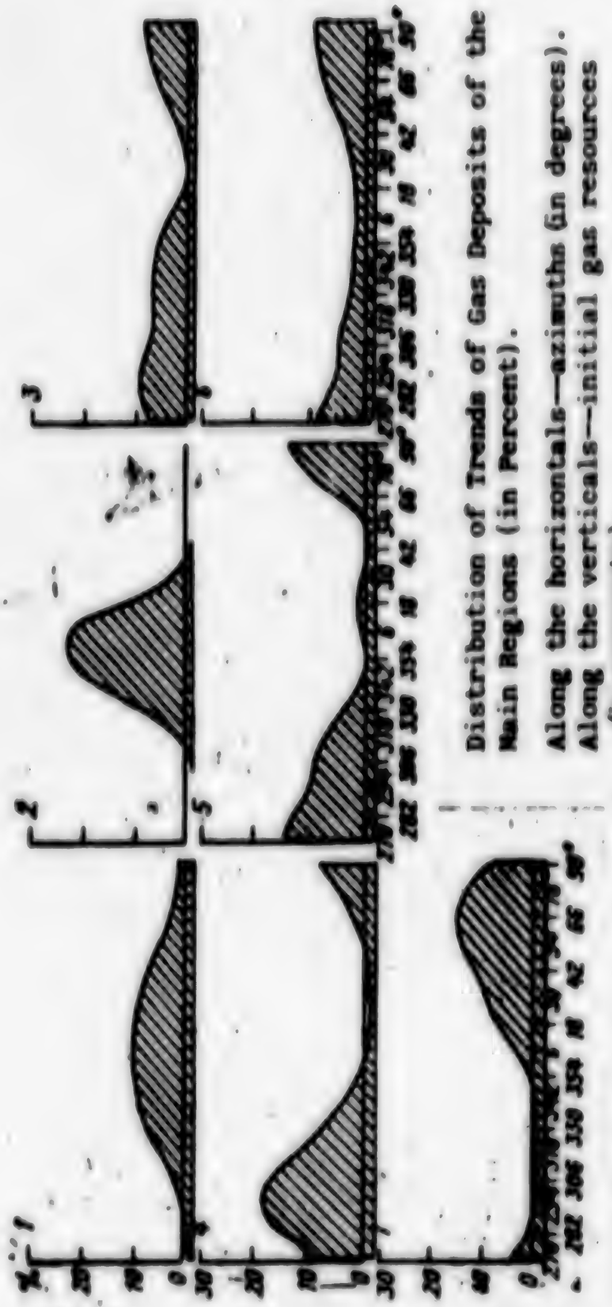
West Siberia. A large number of fields is concentrated here in what is the country's main gas-bearing region. We examined 79 fields. The trend of the gas deposits ordinarily (62 percent) is close to the meridional (azimuths from 342 to 30 degrees). Another 21 percent of all the region's gas resources were found within the two adjacent 12-degree groups of azimuths (318-342 and 30-54 degrees) on both sides. Thus 83 percent of all the region's gas resources were concentrated in deposits that had near-meridional trends or trends adjacent thereto. Let us note that 58 percent of all the gas resources of West Siberia are in deposits that have a trend of 0±30 degrees.

The Timan-Pechora Region. Fifteen fields were examined. This region's gas resources also were concentrated mainly in deposits having a near-meridional orientation (more than 80 percent of the gas resources are in deposits with a strike of 0±18 degrees). The concentration of gas in deposits with near-meridional orientation in the Timan-Pechora region was reflected to an even greater degree here than in West Siberia.

The Volga-Urals Region. The gas deposits of this region have a diverse orientation, but the largest field of this region--Orenburg--has a sublatitudinal orientation and it overwhelms the role of other gas-deposit orientations because of its specific value in the region's gas resources. Other than the Orenburg field, many gas deposits, which are insignificant in resources, have a north-northeastern orientation (0-42 degrees), although sublatitudinal orientations also were often encountered. As a whole, the Volga-Urals region is not marked by the existence of clear dominance of the gas deposits by a single trend.

The Ukrainian Region. Deposits of 61 fields of this region were examined. The main gas resources were concentrated in deposits with a trend between the latitudinal and north-westerly, and here the trends of about 80 percent of all the gas resources were on azimuths of 282-330 degrees, and another 15 percent were at deposits with trends on azimuths of 66-90 degrees. For the Ukrainian region, gas deposits with purely meridional (0+6 degrees), north-northeasterly (6-30 degrees) and north-easterly (30-60 degrees) trends were almost completely absent (see the figure).

The Crimea-Caucasus Region. This region embraces the gas fields of the North Caucasus (Krasnodarskiy and Stavropol'skiy krays in the west and certain territories to the east) and also of the Transcaucasus (mainly Azerbaijan) and the Crimea. The Crimea's share of gas resources in the region is about 2.5 percent.



Distribution of Trends of Gas Deposits of the Main Regions (in Percent).

Along the horizontals—azimuths (in degrees).
Along the verticals—initial gas resources (in percents).

Regions:

1. West Siberia.
2. Timan-Pechora.
3. Crimea-Caucasus.
4. Ukrainian (Dneprovsk-Donetsk depression and the Carpathian District).
5. Volga-Urals.
6. Central Asia and Kazakhstan.
7. East Siberia.

The deposits examined numbered 101. A primary distribution of west-northwest trends of the gas deposits is characteristic (the share of deposits with trends between 270-318 degrees is 41 percent of the region's resources). A certain distribution (25 percent) enjoyed an east-northeast trend. Gas deposits with a northeasterly trend (between 0 and 50 degrees) are encountered very rarely in this region.

Central Asia and Kazakhstan. This extensive region embraces the fields of Turkmenia, Uzbekistan, Kazakhstan, Tadzhikistan and Kirgizia. Eighty-seven fields were examined. The gas deposits of this region have basically a sublatitudinal trend: the share of deposits with a trend of 270÷36 degrees is 60 percent of all the gas resources, while the share of near-meridional orientation deposits (0÷18) degrees is only 6 percent.

East Siberia. The fields of this region are, in essence, only now being opened up, and the existing data for it are less complete than for any other region of the country. The 9 deposits examined here were basically northeasterly and east-northeasterly (18-90 degrees) in trend.

The gas resources of the Island of Sakhalin and of the Far East are insignificant (about 0.2 percent of All-Union resources). The gas deposits here are oriented basically in a northwesterly direction (318-360 degrees).

The averaged data for distribution of the trends of gas deposits two-fold moving 12-degree trigroups of azimuths for various USSR regions are shown in the table. As is evident from what was said above, and from the figure and the table, each region has its own distinctive typical features. But at the same time, certain similarities in the distribution of the trends of gas deposits in various regions can also be observed. If the East Siberian region, the most poorly known, is omitted from the examination, then the following can be noted:

Distribution of Trends of Gas Deposits (Taking Their Resources into Account) in Gas-Bearing Regions of the USSR According to Twofold Moving 12-Degree Trigroups of Azimuths (in Percent)

Azimuth of trend of gas deposits, degrees	Region							USSR as a whole
	West Siberia	Timan-Pechora	Volga-Urals	The Ukraine	Crimea-Caucasus	Central Asia & Kazakhstan	East Siberia	
270-282	1.3	-	16.0	12.5	9.6	9.8	4.6	4.4
282-294	1.5	0.1	13.0	18.2	10.8	8.3	1.6	4.4
294-306	3.0	0.4	9.7	20.4	9.9	6.7	0.8	4.9
306-318	5.0	2.4	9.7	15.7	9.0	6.2	0.6	5.7
318-330	8.4	6.5	6.5	10.2	8.3	5.5	0.3	7.5
330-342	10.4	16.9	3.8	5.0	7.9	4.9	0.2	8.9
342-354	12.7	24.1	1.2	3.0	7.2	3.7	0.3	10.2
354-6	12.5	26.5	2.0	1.1	4.8	3.1	3.4	10.0
6-18	11.8	16.0	2.4	0.3	3.0	3.0	7.1	9.4
18-30	10.8	6.9	2.3	-	1.4	4.3	10.8	6.4
30-42	8.0	0.2	1.7	0.1	2.5	5.9	12.3	6.6
42-54	5.9	-	1.2	0.4	3.5	7.0	14.2	5.6
54-66	3.5	-	4.2	2.2	6.1	9.4	17.0	5.2
66-78	2.9	-	10.0	3.8	7.0	10.5	15.7	5.4
78-90	2.3	-	16.3	7.1	9.0	11.7	11.1	5.4

Note. The gas deposits of Sakhalin Island have been included in the USSR data.

In the northern regions (Timan-Pechora and West Siberian) the deposits have a near-meridional trend, while the latitudinal and sublatitudinal trends there have an exclusively subordinate value, or even are scarcely encountered;

In the southern regions (the Ukraine, Crimea-Caucasus, and Central Asia, and Kazakhstan), on the contrary, the near-meridional trends have the smallest distribution, while the sublatitudinal (especially the west-northwesterly, and also, often, the east-north easterly) trends are most widely distributed; and

In the region intermediate in latitude (Volga-Urals) the largest gas deposits, which are distributed in its southern portion, approximate the deposits of the southern regions in trend. The gas deposits with lesser resources are often found in its middle and northerly sections and have a trend that is often characteristic for gas fields of the country's northern regions.

The integrated data about the trend of the deposits that have been cited for the first time for the USSR's territory undoubtedly have wide cognitive value and scientific and practical interest.

COPYRIGHT: Izdatel'stvo "Nedra" "Gazovaya promyshlennost'", 1980

11409
CSO: 1822

FUELS

UNIFIED SUPPLY SYSTEM VIEWED AS SOLUTION TO AZERBAIJAN GAS PROBLEMS

Baku BAKINSKIY RABOCHIY in Russian 19 Sep 80 p 2

[Article by R. Mamedov, head of Main Administration of Gas Supply of the Azerbaijan SSR: "Unified Gas Supply System Needed"]

[Text] Black columns of smoke above the stacks of the thermal power plants are signs of obvious damage to the environment. They indicate that mazut is used as fuel at these enterprises. The fuel that could become a raw material for the chemical industry is used in a technically inefficient manner, with obvious economic costs. And this oil raw material comes to the consumer from the distant krays, overburdening the railroads and waterways.

In his speech at the November (1979) Plenum of the CPSU Central Committee Comrade Leonid Il'ich Brezhnev among the paramount tasks facing the national economy of the country spoke of the need for the most rapid and complete transfer of the thermal power plants to natural gas. In this respect there remains a lot, and at the same time urgent work to be done in our republic.

The largest thermal power plants of Azerbaijan, Ali-Bayramly GRES, Sumgayt TETs No 2, Krasin GRES, "Krasnaya zvezda"GRES and others today consume over half of all the gas sent for the production and operational needs of the republic. However it still remains a fact that their needs for this fuel are hardly completely covered, and the power plants are forced to burn mazut in their furnaces. The question arises as to the 100% transfer of the power enterprises of Azerbaijan to gas consumption as the main and only source of fuel. The benefits and advantages of such a measure are indisputable, and today no one doubts this.

There are a number of obstacles on the path towards rapid solution of the problem that still need to be overcome. The problem can be solved by the common and friendly efforts of the interested organizations and departments. It is known that its implementation is complicated to a considerable extent by the unsatisfactory technical condition of the main pipelines that feed gas to the power plant. The line to the GRES "Severnaya" for example, was laid over 20 years ago and was designed exclusively to supply this power plant. But then the gas line began to be used to feed gas to other industrial enterprises, as well as the population points of Apsheron. With years this resulted in a sharp reduction in the required pressure, and consequently, a decrease in the fuel supply to the GRES.

There is an even more complicated situation with the line travelling to the Sumgait TETs-2. The available gas line simultaneously supplies the major chemical enterprises of the city. Moreover the mainline is in a technically unsatisfactory condition. It turns out that it is practically impossible to supply the optimal amount of gas to the TETs-2. The situation is also aggravated by the fact that the chemical enterprises and the central heating and power plant are operating at different pressures.

The absence of a powerful gas line also has an effect on the supply of gas for the Ali-Bayramly GRES. The smaller power plants, Krasin GRES, "Krasnaya zvezda" GRES and others are also experiencing difficulties in this respect.

In order to have a complete switch of the power enterprises of the republic to gas supply a number of new gas lines should be laid, and namely: Karadag-Dygya-"Severnaya" GRES; Karadag-Kazi-Magomed-Ali-Bayramli; Sumgait GRES-Sumgait TETs No 2; eighth field GRES-gas refinery, and others.

During the years of the Ninth and 10th Five-Year Plans the gas industry of our republic made a great step forward and stood on a par with the leading branches of the national economy of Azerbaijan. Today gas, as a fuel and a raw material is consumed by over 700 industrial facilities, about 13,000 communal-general and cultural institutions, and over 1,500 boiler houses. The number of apartments with gas has sharply risen in the cities and villages of the republic and currently is 1.3 million. The length of the gas networks has reached a total of 16,000 kilometers.

The numbers say a lot: the annual consumption of "blue fuel" for industrial and communal-general needs now equals 12 billion cubic meters.

The gas supply enterprises of the republic are extensively producing compressed gas and gasoline, are transporting the "blue fuel," and are engaged in construction-installation work to lay gas networks and to gasify industrial and communal-general facilities, apartments in the cities and villages of Azerbaijan.

The Azerbaijan Communist Party Central Committee advanced the task of bringing the gasification in the republic to 100% by the end of the 11th Five-Year Plan. In 5 years it remains to gasify 500,000 apartments; at the same time almost two-thirds of them are in the rural locality. Paramount importance is given to accelerated rates of gasification of the Nakhichevanskaya ASSR. In the socialist commitments for a worthy meeting of the 26th CPSU Party Congress adopted by the enterprises of gas supply it is noted that by the day the forum of the country's communists starts to work the first natural gas will be supplied to Nakhichevan', the rayon centers of Shakhbuz, Babek and Lchin. Gasification of the Nagorno-Karabakhskaya autonomous oblast will be completed in the upcoming five-year plan.

In the final year of the 11th Five-Year Plan the volume and consumption of gas for industrial and communal-general needs will reach 15 billion cubic meters.

All of this requires a change and development of a system of gas supply and distribution. In order to successfully solve the set tasks it is necessary to significantly reconstruct the system in a short time. It is impossible to tolerate the fact that many industrial enterprises still do not have their own isolated gas lines. With a shortage of "blue fuel" in the winter heating season their supply with gas is difficult.

In recent years gas extraction in such oil regions as Azizbekov, Ordzhonikidze, Karadag, Kirovsk and others has been considerably curtailed. The active system of gas supply does not permit redistribution of fuel in the necessary volume.

One should also mention that the construction of residential microregions in direct proximity to the main gas lines interferes with the maintenance of the required pressure in the gas lines.

In the fall-winter heating period when there is a steep rise in gas consumption for communal-general needs there is a shortage of fuel that cannot be filled due to the lack of the appropriate storehouses, that is those very tanks in which gas surpluses could have been accumulated in the summer months. It is impossible to further delay the planning and construction of a local natural gas storehous for Baku.

The most important condition for the uninterrupted operation of the gas enterprises in the republic is a unified gas supply system. The Main Administration of Gas Supply has already begun to develop such a general system with a complex of automated control system. Its introduction will help to radically regulate the general system of gas supply of both the industrial enterprises and the residences.

9035
CSO: 1822

UDC 622.279.012

BUILD-UP OF TYUMEN' GAS FIELD FACILITIES PLANNED

Moscow GAZOVAYA PROMYSHLENNOST' in Russian No 8, Aug 80 pp 8-9

[Article by G. P. Sulimenkov, chief of the VPO Tyumengazprom [All-Union Tyumen' Gas Production Association]: "The Main Direction for Developing the Industry"; passages in slantlines printed in boldface]

> [Text] The forthcoming stage of development of West Siberia's gas industry is marked by the introduction into operation of new gas fields in places that are difficult to reach and still uninhabited. At the same time, accumulated experience and equipment for conquering the fields that are to be worked will enable a higher pace of development of the recovery of Tyumen' gas to be achieved in the future.

Tyumengazprom is currently developing the Medvezh'ye, Urengoy, Vyngapur and Berezov groups of fields. During the whole period of industrial operation of Tyumenskaya Oblast gas fields, 473 billion m^3 of gas have been withdrawn.

The fields are being developed on the basis of the latest achievements of science and advanced technology. Wells of increased productivity and reliability, located in the middle of the field and in clusters, have found wide application. Fourteen installations for treating gas have been automated in integrated fashion, and automated systems for controlling industrial processes have been and are being introduced. The capacity of the UKPG's [Integrated Gas-Treatment Installations] has been increased from 7.5 to 15 billion m^3 per year through the use of highly productive operating equipment.

A major set of gas dynamics and field geophysical research is being conducted at the fields with a view to monitoring development.

This year Tyumengazprom enterprises are coping successfully with plan tasks for recovering natural gas. The daily recovery of gas is now about 400 m^3. Every third cubic meter of the industry's natural gas is from Tyumen'.

The collectives of Nadymgazprom [Nadym Gas Production Association], Urengoygazdobycha [Urengoy Gas Production Association], Tyumentransgaz [Tyumen' Association for Transporting Gas] and Vyngapurgazdobycha [Vyngapur Gas Production Association] have been awarded challenge Red Banners of Mingazprom [Ministry of Gas Industry] and the Central Committee of the Trade Union of Oil and Gas Industry Workers for achieving high indicators in the 1980 All-Union socialist competition.

Many subunits have fulfilled their five-year plan goals ahead of time. Among them are OPS-2 of Nadymgazprom, foreman R. T. Partibayev's drilling brigade of Tyumenburgaz [Tyumen' Gas Drilling Association], the Punga and Pelym repair sections of Tyumentransgaz, and others.

/A growth in gas recovery of more than 37 billion m^3 is to be provided for during the concluding year of the Tenth Five-Year Plan. This is more than was produced in all of 1975. Gas recovery volume should be 148.2 billion m^3. Three UKPG's must be introduced into operation at the Urengoy field and 146 wells must be connected and operations thereat commenced./

Much work has been done during the current five-year period to develop the system for transporting gas in Tyumenskaya Oblast. The bulk of the gas is fed over the Urengoy-Nadym-Punga gas pipeline system and beyond, to the Urals and to Ukhta. A two-strand gas pipeline system on the new Urengoy-Vyngapur-Chelyabinsk route, which is supposed to be brought up to design capacity in the fourth quarter of 1980, has been built and put into operation. Fourteen compressor stations out of 16 (the first phase) are now operating here. Much work is being done to build the second phase of compressor stations. In all, 20 compressor departments are to be put into operation this year.

/The first stage of construction of the five-strand SRTO-Urals gas pipeline, with the planned introduction of 400 km of pipeline, was started this year.

The association's drilling enterprises face major tasks. In 1980, 175,000 meters of rock must be drilled through. A distinctive feature of this year's production program is the concentration of drilling at the Urengoy field, where work volume has more than tripled that of 1979./

For this purpose, one drilling brigade of the Arctic Expedition and the whole Vyngapur Expedition were redeployed in January-April of this year to the UKPG-5.6 area of the Urengoy field. During this time drilling enterprise forces did a substantial amount of work on buildup of the expeditions' temporary bases, and preparatory work for drilling was done during the roadless season. The drilling brigades of I. V. Maksimov and V. I. Popov undertook to drill the first operating holes back in March.

Systematic work is being done in the association to raise the drilling speed and to shorten the hole-construction cycle. Two combination exploratory-development holes were drilled at the Urengoy field in 1980. The drilling brigades of foremen G. A. Sidorov and A. I. Glynyanov from the

Urengoy Deep-Drilling Expedition drilled holes Nos 422 and 4101 at effective drilling speeds of, respectively, 2,841 and 2,852 meters per rig per month.

/In order to do ever-increasing amounts of drilling at Urengoy, the construction of housing, drilling bases and electrical-system facilities must be sharply improved, and roads must be built within the field at an outstripping pace.

Existing experience in mastering northern fields will enable a faster pace in the development of gas recovery in Tyumenskaya Oblast to be planned for the next five-year plan. It is planned to put the Yamburg field under development. In order to fulfill the tasks for its build-up, we are now planning advance work at this field, together with the builders./

It should be noted that the transportation scheme for the Yamburg field is even more complicated than that for Urengoy. Therefore, we consider it desirable to consider the question of the accelerated construction of the Yamburg river port on the eastern shore of the Ob' Gulf.

During the Eleventh Five-Year Plan gas will be transported along both the old system and the newly built systems from the Urengoy (three strands) and the Yamburg (two strands) fields. Major capital expense is required for construction of the new facilities. The amount of work done by in-house contract is rising considerably.

The party and the government are paying great attention to the development of Tyumenskaya Oblast's gas industry. In order to accelerate the exploration and integrated development of the Urengoy field, gas-recovery tasks during the next five-year period have been spelled out specifically, and tasks for construction of both the basic facilities and housing and facilities for social, cultural and everyday-living purposes have been established. Construction organizations have been recruited from other parts of the country for the construction of city and settlements. All this will play an enormous role in creating production capacity for the recovery and transport of gas, especially bases for the construction industry and for supplying materials and equipment and facilities for housing and social, cultural and everyday-living purposes.

COPYRIGHT: Izdatel'stvo "Nedra" "Gazovaya promyshlennost'", 1980

11409
CSO: 1822

PROGRESS MADE IN ARMENIAN GASIFICATION, GAS SUPPLY

Yerevan KOMMUNIST in Russian 7 Sep 80 p 2

[Article by S. Gyurdzhinyan, first deputy head of Armenian Main Administration of Gas Supply: "Blue Mainlines of Armenia"]

[Text] The rapidly developing young gas industry branch in Armenia has a beneficial effect on the transformation of the appearance of our republic and increase in the population's level of living. It is now difficult to name a sphere of social production that would not use natural gas.

Armenia has reached high indicators among the country's republics also in the number of constructed gas mainlines and those put into operation, and gasification of apartments.

Currently 60 cities and settlements of the urban type and 600,000 apartments in Armenia have been gasified; of these apartments 180,000 are in the rural locality, 1550 heating boiler houses, 790 industrial and agricultural enterprises, and 700 gas-regulatory points have been built. The housing fund of the republic has been gasified by 93% which is much higher than the average union indicator.

From year to year there is an increase in the length of the gas networks. The five-year plan for construction of gas lines was fulfilled ahead of schedule, in 4.5 years. This year 13,000 apartments were gasified, 70 kilometers of average and low pressure gas lines were built and put into operation, and construction-installation work for R 4 million was completed. Before the end of the year gas lines will be put into operation in the villages of the Talinkskiy, Abovyanskiy, Gugarkskiy, Stepananvanskiy, Tumanyanskiy and Idzhevanskiy regions.

The power base of industry has been significantly strengthened and broadened with the supply of natural gas to our republic. Natural gas is widely used not only as fuel, but also as a raw material for the chemical industry, and also participates in the technological processes of many industrial enterprises.

In the current five-year plan the construction of production-technical bases in Yerevan, Idzhevan, Echmiadzin and Kamo was significantly developed which permitted a considerable inrease in mechanization of work and labor productivity.

One hundred and fifty workers of the system were awarded the title "Shock worker of the 10th Five-Year Plan" for the results of the socialists competition and for advances made in fulfilling the planned indicators.

Today I would like to especially mention the names of the workers and engineering-technical workers who with their labor have promoted the successful development of the republic's gas supply. They include the electrical arc welders Boris Adamyan and Samson Reganyan, mechanics Andranik Talyan, Volodya Abramyan and Yenok Opadzhanyan, deputy head for control and measuring instruments and automatics of the administration "Armorggaznaladka" Romik Gabriyelyan and many others.

This year construction has been started of the main gas line Mozdok-Makhachkala-Khachmas-Kazi-Magomet that extends 617 km; it is being connected to the gas line Astara-Baku-Kazakh-Tbilisi-Yerevan, i.e., the Transcaucasian system.

With the putting into operation of the Mozdok-Kazi-Magomet gas line in 1981 the entrance of gas into the repyblic will signicantly increase.

It is planned to complete the main gas line Yevlakh-Nakhichevan' with outlets to the cities of Goris, Kafan and Kadzharan by the end of 1980, with subsequent construction of the Nakhichevan'-Yerevan gas line.

With the introduction of these gas lines there will be a real opportunity to create a unified and connected gas supply system for Armenia, Georgia and Azerbaijan. With an unstable gas supply to our country and its shortage in the fall-winter period the role of underground gas storage facilities rises immeasurably; their capacity is continually increasing.

One of the main tasks of the workers of gas supply and the gas-consuming enterprises is the all-possible intensification in the struggle for conservation and a prudent consumption of the fuel and energy resources. The struggle for conservation and the efficient use of gas should become a national concern. One hundred and fifty sets of automatic safety and thermal control units have been installed in the 50 boiler houses of the republic. The administration "Armorggaznaladka" has done repair and set-up and adjustment work at 78 industrial and 178 communal-general facilities. Thanks to the carrying out of this work and reduction in losses by the enterprises 7 million cubic meters of natural gas were saved. However the leaders of many enterprises are not taking measures to equip the units with the latest gas burner devices and are not completely using recovery of products of combustion and secondary energy resources.

One of the factors for saving gas and revealing sources of its loss is strict accounting of gas consumption. The Main Administration of Gas Supply is solving this problem by introducing automated control systems using modern computer resources. The main purpose of the TP automated control system is a radical improvement in control over the technological processes, transportation and distribution of gas among the consumers, and increase in reliable gas supply.

An important period, the heating period, will occur in 2 months when gas consumption sharply increases. The main task of the workers in the system is to bring each cubic meter of gas without loss to the consumer and prepare the system of gas supply in the republic for the winter heating season in time.

The numerous army of workers in our branch will display high political consciousness, will multiply their labor efforts, and will raise even higher the banner of socialist competition for a worthy meeting of the 26th CPSU Congress.

9035
CSO: 1822

FUELS

RULES OUTLINED TO PROTECT UNDERGROUND GAS LINE FROM DAMAGE BY SURFACE WORKERS

Ashkhabad TURKMENSKAYA ISKRA in Russian 3 Sep 80 p 4

[Article by the production association "Shatlykgazdobycha" of "Turkmentorgreklam": "Attention: Gas Main!"]

[Text] The Shatlyk administration of gas mains of the production association "Shatlykgazdobycha" is informing all the leaders of the construction organizations, institutions, chairmen of the kolkhozes and directors of sovkhozes on whose land the Mayskyoe-Ashkhabad-Bezmeyn main gas pipeline with 55 atmospheres pressure passes that the transported gas is explosive and flammable. Any mechanical damage to the pipeline can break the pipeline, accompanied by an explosion and fire that could result in victims.

In order to prevent damaging the main gas pipeline it is necessary to know that a protection zone has been made of 150 meters on both sides of the gas pipeline.

Order for Working in the Protection Zone

For the reliable and safe operation of the gas pipeline the Shatlyk line-production administration of main gas pipelines has developed instructions for safety measures in fulfilling agricultural work and is presenting it for a decision by the rayon or municipal ispolkom of the Soviet of People's Deputies;

kilometer reinforced concrete columns with warning signs have been installed to confirm the gas pipeline route;

the land in the protection zone remains the property of the land users and can be utilized by them for agricultural needs.

It is forbidden in the gas pipeline protection zone:

to erect buildings and structures;

to do any kind of construction, installation, land, drilling and blasting, and mining work;

to set up field housing for the machine operators for the period of agricultural work;

to set up shooting ranges, storehouses of different construction, fuel and lubricants, and other materials;

to construct pens for cattle, field machines, transportation resources or to permit the gathering of people;

to erect residential structures of any type on the sections set aside for individual and collective planting of gardens;

to cross over the gas pipeline route outside the places designated for crossings;

to light fires and burn dry grass;

to create on the gas pipeline junctions artificial water barriers, to cast anchor, set up moorings, beaches, set aside fishing sections and conduct dredging and excavating operations.

The conducting of all types of construction work in the protection zone and the gas pipeline outlet zone (making of irrigation ditches, trenches, laying cables, pipelines and other types of earth work) requires the written permission of the Shatlyk line-production administration of main gas pipelines.

Work in the outlet zone must be done only in the presence of a represenatative of Shatlyk line-production administration of main gas pipelines (ShLPUMG).

The individuals who permit a violation of the work rules in the protection zone and the gas pipeline outlet zone are legally responsible.

Comrades in charge, foremen, excavators, bulldozer drivers, machine operators, and leaders of the transportation brigades, kolkhozes and sovkhozes! Do not forget that in the protection zone of the main gas pipeline it is forbidden to carry out mechanized excavation work since this can damage the underground gas pipelines!

The underground gas pipelines are designated by columns every kilometer in the locality.

REMEMBER that during the period of operation of the gas pipeline since 1969 the depth of occurrence was reduced after agricultural work and is now less than 0.8-1.5 meters from the planned surface of the ground!

If you find gas leaking to the surface on the pipeline route immediately report it to the Shatlyk line-production administration of main gas pipelines of the "Shatlykgazdobycha" association.

Drivers of Excavation Machines!

The foremen, men in charge and brigade foremen need written permission from the enterprise operating the gas pipeline for excavation work. Pay attention to the warning signs and columns that designate the main gas pipeline route.

For all questions on excavation work approach the Shatlyk line-production administration of main gas pipeline at the address: Maryyskaya oblast, Sakar-Chaginskiy rayon, Shatylk settlement, ShLPUMG, telephones: Nos 3-61 and 3-69; No 52-82 in Mary, No5-51-81,No 5-59-64 (dispatcher's office) in Ashkhabad.

9035
CSO: 1822

MORE ATTENTION GIVEN TO NATURAL GAS WITH HYDROGEN SULFIDE

Moscow GAZOVAYA PROMYSHLENNOST' in Russian No 8, Aug 80 p 28

[Article: "Promising Directions in Prospecting for Hydrogen-Sulfide Containing Gases"]

[Text] A conference of the unit, "Raising the Effectiveness of Geological Exploration and Geophysical Methods for Studying Wells," was held at the Mingazprom [Ministry of Gas Industry] Scientific and Technical Council, where questions of increasing the extent of extracting useful minerals from the ground and of providing for more completely integrated processing of mineral raw materials were discussed, in April 1980.

The USSR Map of the Prospects for Searches for Hydrogen-Sulfide Containing Gases, which VNIIgaz [All-Union Scientific-Research Institute of Natural Gases] compiled and published, shows the broad scale of distribution of hydrogen-sulfide containing gases in the ground. These gases are distinguished by variability in the hydrogen-sulfide concentration and by selective confinement to carbonaceous complexes. The map introduces considerable changes in notions about the nature of the country's raw-material base.

Half of the explored, prospected and forecast gas reserves of the Timan-Pechora, Caspian and Central Asia gas-bearing provinces are now comprised of hydrogen-sulfide containing gases. Later on, as the depths of drilling are mastered, the share of these gases and the concentration of hydrogen sulfide in them will increase.

A considerable increase in the share of acidic components in the natural gases of a number of the country's gas-producing regions has provided for a substantial increase in gaseous reserves of sulfur, which has enabled valid planning for the level and periods for recovering it. In so doing, the discovery of gases high in sulfur predetermines that substantial national-economic benefit will be obtained from the realization of gaseous sulfur resources.

Oil-and-gas-recovery, geological-exploration, production and scientific-research organizations have become acquainted with the map presented by

VNIIgaz. As a result of the discussion that was held, the Scientific and Technical Council noted that, with the development of the raw-materials base, the gas industry of Timan-Pechora, Caspian, Urals and Central Asia provinces and the share of hydrogen sulfide in the inventory of gas reserves will grow. Questions of the economic effectiveness and profitability of mastering natural gas fields as a function of the reserves and the concentration of acidic components have not been developed adequately.

After examining the USSR Map of Prospects for Searches for Hydrogen-Sulfide Containing Gases, the Scientific and Technical Council approved the main guidelines for prospecting for hydrogen-sulfide containing gases in the Timan-Pechora, Caspian and Central Asia gas-producing regions. It was decided to send the map for introduction to Mingazprom and USSR Mingeo [Ministry of Geology] organizations as a basis for planning areas for prospecting for deposits of hydrogen-sulfide containing and sulfur-free gases. It is also necessary to examine at the NTS the methodology for accounting for and estimating the hydrogen-sulfide reserves in gas fields and oil-and-gas fields developed by VNIIgaz.

It was proposed that VNIIgaz continue to work on forecasting large fields of hydrogen-sulfide containing gases of various compositions, to develop proposals for improving the methodology for sampling gas wells for hydrogen sulfide, and to make proposals for the certified content of hydrogen sulfide in gas deposits with a view to making industrial use of it.

COPYRIGHT: Izdatel'stvo "Nedra" "Gazovaya promyshlennost'", 1980

11409
CSO: 1822

LAG IN COAL MINE TUNNELING EXPLAINED

Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 17 Sep 80 p 2

[Article by A. Lebedev, deputy technical director for long-term development of the association "Prokop'yevskugol'": "The Deeper the Bed"]

> [Text] The successful work of the solid fuel extractors depends a lot on the timely preparation of new longwalls. At the same time the rates for tunneling mine shafts in a number of the country's coal basins are low. The authors of the letters published below discuss the reasons for such a situation.

First I will give some numbers for clearness. The association "Prokop'yevskugol'" is responsible for slightly more than 3% of the fuel in the branch. On the other hand our tunneling of preparatory shafts reaches one-fifth of the level of the entire coal industry, 880 kilometers per year! Of this only one-third is horizontal, and the rest is vertical and inclined.

The labor intensity of preparatory work in Kuzbass is 1.5-fold higher than breakages. It is slightly less than one-third of the total labor intensity of extraction. Our main reserves are hidden precisely in the tunneling, as experience shows: only with advanced rates of preparatory work can one guarantee the rhythmic extraction of fuel. At the same time at the association mines the development of the breakage face is noticeably lagging due to the shortage of powerful tunneling combines and other machines.

I will not be without proof. Previously the drilling rigs "KBM" were used to tunnel through rock. Two years ago they were replaced with the more modern "BKG-2." But whereas previously we received 25 drilling rigs per year, in the last 2 years we have not recieved any. This year they have promised at best 18. And the quality of the rigs leaves something to be desired: the Kuznetsk machine construction plant is slowly improving the reliability of the equipment.

The timberwork is another problem. With the transition to deep levels it is necessary to timber the so-called upsets to yield the extracted fuel. Usually timber is used here, but the specialists of the Kuznetsk Scientific Research Coal Institute (KuzNIUI) have created a production line for manufacturing tubing timbering made of plastic. It is being successfully employed at the Kalinin mine and has a number of advantages. Now a new line has been installed and is being adjusted for 9 kilometers of timbering per year. But this is a drop in the bucket! These lines will barely take care of one-fourth of the need. A plant is needed to produce such timbering, although only for Kuzbass.

But those tubes that we have are difficult to install. The reason is that we have no equipment for drilling a coal well 1,300 millimeters in diameter. There are no reliable machines for drilling through rock, which delays the use of the progressive anchor timbering.

The miners are descending deeper and deeper for coal, and this requires an increase in the section of the mine shafts so that they do not have to be reinforced later during the opration. But the working width of the old loading machines "1PPN-5" is small. The tunnelers have to compensate for this shortcoming with a shovel. New "2PNB-2" with large working width have been made, but we receive only five of them per year. On the other hand we get two dozen of the old machines.

The sluggishness in solving technical problems is simply amazing at times. Two years ago at the mine "Tyrganskaya" one of the shafts caved in. In order to guarantee work safety the USSR Ministry of the Coal Industry issued an order requiring the development of a new technique for computing the density of the timbering. While the Moscow "Tsentrogiproshakht" considered, theKuzNIUI in cooperation with the branch of the Leningrad Scientific Research Institute of Mining Geomechanics and Mine Surveying developed a calculation technique. We have been already been waiting a year for its confirmation.

The deeper the shaft the higher the mining pressure. In order to withstand it the timbering is made stronger and stronger: the weight of a running meter of metal timbering has doubled, to 33 kilograms, and there are no means of small-scale mechanization of the timbering. Thus the expenditures of labor for tunneling mine shafts increase.

Often there are not enough tunnelers. The young people are reluctant to go to the preparatory sections for this is unprestigious work, heavy and manual labor. Moreover, it must be confessed that the tunnelers in the mines are often diverted to outside work: there are few helpers. You do not take people from the breakage faces for coal needs to be produced.

There is difficulty at the tunneling not only with the work force. No specialists come here either. As a rule we do not keep the graduates of the mining VUZ's from the western regions of the country. We somehow manage with home-grown specialists, those who study by correspondence , at the evening departments. But they are clearly insufficient.

The miners of "Prokop'yevskugol'" have long-standing, good traditions. They are responsible for a lot of good work. But in recent years they have not coped with the planned assignments. This mainly occurs because the technical equipping, especially for tunneling, lags behind the modern level.

9035
CSO: 1822

IN-HOUSE CONSTRUCTION TO BUILD UP TYUMEN' GAS FIELDS

Moscow GAZOVAYA PROMYSHLENNOST' in Russian No 8, Aug 80 pp 2-5

[Summary of address by Minister of Gas Industry S. A. Orudzhev: "The Decisions of the November 1979 Plenum of the CPSU Central Committee Are Being Put into Action!"]

[Text] The task of providing West Siberia's gas-industry workers with well-built housing and facilities for social, cultural and personal-services purposes is the center of attention of communists of the Mingazprom [Ministry of Gas Industry] central staff.

On 20 June they dedicated a party conference to this question, at which they discussed specific ways to accelerate implementation of a number of urgent measures for strengthening nonproduction construction in the region of the West Siberian complex.

Reporting to the conference were comrades S. A. Orudzhev, Minister of the Gas Industry; Kh. I. Kalayev, deputy chief of the PEU [Economic-Planning Administration]; I. I. Agayev, chief of the Administration for Supplying Materials and Equipment; N. V. Petlichenko, chief of the Capital Construction Administration; E. G. Odintsova, chief of the Administration for Making up Complete Sets of Equipment; and Yu. M. Krikorov, chief of the Administration for the Organization of Work, Wages and Worker Personnel.

The communists of the ministry's central staff, after discussing urgent questions of further developing the Tyumenskaya Oblast gas industry, adopted specific decisions, and they decreed:

To consider their most important task to be that of strengthening organizational and political work to mobilize the ministry's staff and the collectives of all enterprises and organizations subordinate to the ministry for the development in every possible way of their creative initiative, socialist competition, and the raising of discipline and responsibility, which are aimed at unconditional fulfillment of the program for developing the West Siberian oil and gas complex.

The address of Minister of Gas Industry S. A. Orudzhev is published below in abbreviated form.

Further social and economic progress of the country and a rise in the Soviet people's welfare depend to an enormous degree upon successful solution of one of the key problems of developing the socialist economy--that of the outstripping growth of the national economy's fuel and energy potential.

The party's Central Committee and the Soviet Government are paying unremitting attention to solving urgent questions of building up the capacity of the fuel and energy complex and of improving its structure, primarily through a priority increase in the proportion of oil and gas in the country's fuel and energy balance.

In his report to the November 1979 CPSU Central Committee plenum, General Secretary of the party's Central Committee and Chairman of the Presidium of the USSR Supreme Soviet Comrade Leonid Il'ich Brezhnev gave a profound analysis of the state of affairs in the fuel and energy complex, setting forth principles of the ways to further develop and raise its effectiveness, pointing out, in so doing, the necessity for a still more decisive increase in the pace of gas recovery in West Siberia.

The fact is that West Siberia--the chief raw-materials base of our industry--has a special place in supplying gas to the national economy, both now and in the long term.

In the whole history of development of the domestic gas industry, not one gas-producing region has shown the burgeoning, large-scale growth that West Siberia has. In less than 15 years, from the day of delivery of the first cubic meters of Siberian gas to the industrial Urals, thanks to the joint heroic efforts of gas-field workers, builders, installers, geologists and people of many other vocations, amid the difficult conditions of this district, the largest regional production complex for the recovery and transport of gas has been created and continues to take shape. This year it is planned to recover more than 155 billion m^3 of gas, which will be more than 35 percent of nationwide recovery.

Right now a new and still more complicated stage in developing this gas-producing region has set in. This stage is characterized by the fact that new gas fields here that are situated in as-yet uninhabited places that are difficult of access will be put into operation. It is required that capital investment be greatly increased for purposes of a sharp expansion in the work volume, the laying of superlong-distance gas pipelines, and the construction of compressor stations. Tens of installations for the integrated treatment of gas are to be built, and a network of roads and electric-power and communications lines among the oilfields is to be developed in the taiga and tundra. The share of Tyumen' gas in nationwide recovery will grow each year at a rapid pace and, in the long term, will occupy the dominant position in the country's gas supply. Thus already, by the end of the Eleventh Five-Year Plan, a substantial part of the country's total gas recovery is to come from West Siberian fields. And so, exceptionally strenuous work, gigantic in scale and complexity, to increase gas recovery rapidly lies ahead of us.

However, the development of this gas-producing region is being held back to a great extent by a shortage of housing and facilities for social, cultural and personal-services purposes. At present the provisioning of housing space for gas-industry workers and members of their families in Tyumenskaya Oblast is, on the average, lower than in other gas-producing regions.

Matters are going unsatisfactorily also with the construction of children's preschool institutions, schools and public-health facilities for gas-industry workers.

The shortage of housing and of facilities for cultural and personal-services purposes does not help to retain personnel. It becomes necessary to recruit a supplementing work force, which, given the shortage of housing, children's preschool institutions and schools, leads to great difficulties.

The basic cause of the situation that has been created is the lag of Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] in carrying out tasks and annual plans for putting housing and social and personal-services facilities into operation.

The Central Committee and the USSR Council of Ministers, attributing exceptional importance to further accelerating development of West Siberia's oil and gas industry, have concentrated the attention of Union ministries and the country's republics and cities on solving problems of strengthening industrial and housing construction and improving social conditions and personal services for oilfield and gas-field workers, geologists, power workers and builders in West Siberia.

Such ministries as USSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises] and USSR Minstroy [Ministry of Construction] should direct greater attention toward the erection of these facilities. Building materials industry plants will send substantially more materials and structure to West Siberia. USSR Minpromstroy [Ministry of Industrial Construction] construction trusts will take a more active part in the erection of housing. Builders of Moscow, Leningrad, the Ukraine, Belorussia, Latvia, Estonia, Uzbekistan and Kazakhstan will extend fraternal assistance in the erection of housing in West Siberia. This is new, bright testimony to the indissoluble friendship, brotherly collaboration and mutual assistance of our country's peoples, which comprises the main source of our strength and might.

It is also intended to accelerate the development in West Siberia of a base for the construction industry and the building-materials industry.

The CPSU Central Committee and the USSR Council of Ministers have approved the initiative of the Komsomol Central Committee to send young workers on Komsomol travel authorizations, for the construction of facilities of the West Siberian complex.

In order to implement the intended construction program, important tasks of providing design and budget-estimating documentation and financing, supplying materials and equipment for the large amounts of construction of housing and social and personal-services facilities that are contemplated, and putting 175,000 m^2 of housing into operation through the efforts of in-house construction organizations, have been set before the central staff, enterprises and organizations of Mingazprom.

Experience has confirmed completely the correctness of the policy we adopted for developing in-house contracting. With our own forces we are now building up gas fields, we are doing construction work on compressor stations and treatment plants, and we are repairing and building trunk gas pipelines, housing, kindergartens and nurseries, schools and hospitals, hothouses, livestock complexes, and many other facilities.

In-house contracting activity has been transformed into an important subbranch. In 1979 the total amount of construction and installing work carried out with our own forces was more than 578 million rubles' worth, 4-fold that of 1972. Right now we have at our disposal 29 construction and installing trusts, 282 SMU's [construction and installing administrations] and PMK's [mobile mechanized columns] and cost-accountable sections, and we will further develop this most important area of our economic activity.

However, we have many serious deficiencies in this matter. Each year ever greater tasks for the erection of facilities that are extremely necessary for the ministry's basic activity are set before our builders. At the same time, we lose sight of the fact that modern construction operations are unthinkable without an in-house construction industry, enterprises for the repair of machinery, and construction bases.

Engineering preparation for the construction of facilities is being conducted unsatisfactorily. There is a lack of coordination in the formulation of plans for contracting work. As a consequence of this, our builders' plans often do not correspond to the capabilities of construction subunits and the possibilities for the supply of materials and equipment.

It is necessary to design and build within a short time construction-industry facilities--plants for reinforced-concrete items, facilities for brick and intermediate installing stock, wood-processing enterprises, and so on, and also to ponder the question of building our own housing-construction combines. Acceleration of the construction of an industrial base for in-house contracting organizations and providing them with equipment will enable further growth in the work done to build housing and other most important facilities by our own forces.

A substantial share (15 percent) of all the ministry's in-house contracting activity will be performed by construction organizations of the industry in West Siberia. Right now 7 construction and installing trusts and about 50 construction and installing administrations, mobile mechanized columns and cost-accountable sections are operating there now. In-house contracting work has increased 3.2-fold since 1975. West Siberia's in-house forces of construction and installing organizations introduced 25,000 m^2 of living space, institutions for 520 children and many other facilities in 1979.

However, in-house construction organizations are working unsatisfactorily in this region. Construction-industry bases are being built with intolerable slowness. Almost all building materials and structure are being brought in over long distances, at a time when there is all the potential for organizing their production locally. It is pertinent to note the positive experience in the work of Komsomol'skremstroygaz [Komsomol'sk Construction-Repair Trust for the Gas Industry], which built within a short time the first phase of a plant for constructional structure and began to provide Tyumengazprom [Tyumen' Gas Industry Association] with lumber and carpentry items.

It should be noted that housing, schools and kindergartens that are on the books of Tyumengazprom enterprises are being maintained in an unsatisfactory condition and are not being repaired on time; and utilities and service facilities and lines are being operated especially poorly. Plans that have been worked out and approved for the preparation of buildings for operation during the winter are not being fulfilled. As a result of the irresponsible attitude of some supervisors toward the upkeep of social and personal-services facilities, much material damage is being inflicted, and the time spent satisfying workers' requirements for housing, schools and kindergartens is being prolonged.

Monitoring progress in the construction and operation of existing facilities for housing and for social, cultural and personal services in this most important region must be reinforced. Beginning in 1981, the pace of housing construction must be increased 2.5-fold. Because of this, the existing structure for the management of construction operations facilities should be reviewed, with a view to concentrating the efforts of our construction organizations on the successful solution of these extraordinarily complicated problems. Also required is a radical improvement in the system of providing construction with supplies and equipment.

Because of the constantly increasing amounts of construction, installing and operations work at facilities for the recovery and transport of gas during the development of the region being examined, roads are acquiring an important role.

There are now about 100 km of hard-topped roads in this important territory, and most hauling is being done over "winter roads," which extend for more than 2,500 km.

The lack of the required extent of improved roads greatly hampers year-round execution of construction operations and the supplying of materials and equipment and fails to insure preservation of the equipment and materials being hauled. When hauling freight over temporary, unimproved "winter roads," time for delivering supplies and equipment is greatly increased, and more drivers are required in the face of a severe shortage of labor resources.

Our task is to take all the steps that will insure execution of the task of building 300 km of roads for the gas industry. It is necessary to prepare in good time design and budget-estimating documentation for the construction of first-priority roads, to allocate the necessary capital investment, to coordinate dates with the contractor, and to insure systematic monitoring over construction progress. The requirement for road construction in this region prior to the end of the Eleventh Five-Year Plan and for the long term must be determined now in order to include the development of design and budget-estimating documentation in the plan in good time, to call for the allocation of funds, and to coordinate road-construction priority with the contractor.

In the modern era, the gas industry has at its disposal a powerful production-economics and scientific-technical potential, and, the main thing, remarkably highly qualified personnel, who have been enriched by many years of experience in solving complicated, important problems of insuring a reliable gas supply for the national economy. Our dynamically developing branch is successfully carrying out each year plan tasks and the socialist commitments that have been adopted.

The achievements of Soviet gas-field workers during the first 4 years of the Tenth Five-Year Plan were noted by the CPSU Central Committee and the Soviet Government: more than 1,300 workers of the industry have been awarded orders and medals. This important fact has stimulated in us the desire to labor with still greater vigor. A combat spirit reigns now in all of the industry's production elements, and there is a striving to produce as much more natural gas for the economy as possible. During the first 7 months of the concluding year of the Tenth Five-Year Plan, about

3 billion m^3 of gas and more than 80,000 tons of crude oil and condensate above the plan were produced. Other basic indicators of the branch's economic activity also were overfulfilled.

All the efforts of the industry's workers have been aimed not only at fulfilling but also at greatly exceeding the upper standard for gas recovery in the country that was set by "The Main Directions for Developing the USSR's National Economy During 1976-1980." It is this that will be our answer to the party's call to greet the ordinary 26th CPSU Congress worthily.

COPYRIGHT: Izdatel'stvo "Nedra" "Gasovaya promyshlennost'", 1980

11409
CSO: 1822

FUELS

UDC 622.279:624.9

MORE HOUSING, AMENITIES MUST BE PROVIDED TO GAS FIELDS

Moscow GAZOVAYA PROMYSHLENNOST' in Russian No 8, Aug 80 pp 6-7

[Article by A. G. Gudz', deputy minister of the Gas Industry: "Build Housing with the Amenities for Gas Industry Workers"; passages enclosed in slantlines printed in boldface]

> [Text] Managers of associations and enterprises and all workers of the clients' services should, jointly with oblast and rayon executive committees, adopt for construction standard designs that meet modern requirements for comfort and the climatic conditions of the region of construction.

Guided by the decisions of the 25th CPSU Congress and of later party Central Committee plenums, Mingazprom [Ministry of Gas Industry] is paying great attention to improving housing conditions and personal services for workers. Each year centralized capital investment for the construction of housing and of facilities for education, public health, culture and shopping is being increased.

In 1979 almost 2½ times as much money was allocated for the construction of housing and public buildings as in 1972. During the year, apartment houses that total 440,000 m^2 in area, institutions for 2,470 preschool children, schools for 4,560 students, hospitals with 380 beds and a polyclinic for 50 outpatients were introduced into operation.

At the same time, the plan for nonproduction construction for 1979 was not fulfilled. An especially poor situation has prevailed in newly developed gas-recovery regions and at large gas-transporting systems.

In resolving the major tasks for the construction of gas trunk pipelines, compressor stations, gas fields, and other facilities for production purposes, our main contractors--Minneftegazstroy [Ministry of Construction of Petroleum and Gas Industry Enterprises] construction organizations--were little concerned about introducing these facilities into operation at the same time as housing and public buildings, and they are not developing the capability for constructing housing.

Managers and supervisors of the client associations--Tyumengazprom [Tyumen' Gas-Production Association], Komigazprom [Komi ASSR Gas-Production Association] and Saratovtransgaz [Saratov Association for the Transport of Gas]--are not paying enough attention to questions of building nonproduction facilities.

/It is obvious that further development of the West Siberian oil and gas complex requires a different, improved approach to nonproduction-type construction and to providing increasing numbers of skilled specialists with housing that has the amenities./

Undoubtedly, effective measures consist in recruiting additional construction organizations from other parts of the country, in order to reinforce construction in this region. This will enable a substantial inventory of housing and of social and personal-services facilities to be created, and, in this way, most operations specialists and builders will obtain permanent-type housing with the amenities.

Many Union ministries and republics and cities have set about to implement the program of extending assistance to Minneftegazstroy and USSR Minpromstroy [Ministry of Industrial Construction] in building and introducing into operation apartment houses in Tyumenskaya Oblast by delivering outfitted sets of constructional structure through the efforts of organizations of Mosgorispolkom [Moscow City Ispolkom], USSR Mintyazhstroy [Ministry of Construction of Heavy Industry Enterprises], Lengorispolkom [Leningrad City Ispolkom], USSR Minstroymaterialov [Ministry of Construction-Materials Industry], USSR Minstroy [Ministry of Construction], and the councils of ministers of the Belorussian, Ukrainian, Lithuanian and Estonian SSR's. West Siberian construction projects also will be provided with labor and material resources.

The development of a construction-industry base and building-materials industry in West Siberia is to be accelerated.

In April of this year a conference was held in Tyumen' about preparations for the integrated buildup of cities and settlements of Tyumenskaya Oblast during 1980-1983. The conference adopted a number of concrete decisions about distributing among organizations recruited from other regions the number of apartment houses, kindergartens, polyclinics, shopping centers and cinemas to be introduced.

A procedure has been established for providing those who have come to do construction work with housing, eating facilities, medical and sanitary services, transport equipment, machinery, mechanisms, tools and accessories and packaged personal-services premises and other auxiliary facilities necessary for the construction of housing and of cultural and personal-services facilities, as well as material resources.

A current-operations group has been established in Glavtyumenneftegazstroy [Main Administration for the Construction of Oil and Gas Industry Facilities in Tyumenskaya Oblast] for coordinating the activity of the construction organizations.

At another conference, which also convened in Tyumen' in April 1980, about organizing the design of cities and workers' settlements of the West Siberian oil and gas complex, the executive-agent clients, general contractors and executive-agent designers for the buildup of cities and workers' settlements were identified. Thus, for Novyy Urengoy the client is Urengoygazdobycha [Association for Gas Recovery in Urengoy], the general contractor is Urengoygazstroy [Trust for the Construction of Gas Recovery Facilities in Urengoy] of Glavtyumenneftegazstroy, and the designer is LenZNIIEP [Leningrad Zonal Scientific-Research and Design Institute for Standard and Experimental Design] of Gosgrazhdanstroy [State Committee for the Architecture and Construction of Public Buildings].

LenZNIIEP has been charged with developing proposals for the detailed layout of the regions that are subject to development in 1980-1981, and, jointly with GlavAPU [Main Architectural and Layout Administration] of Lengorispolkom [Leningrad City Ispolkom], with making recommendations for types of apartment houses (that are subject to construction beginning in 1982) that will meet the prerequisites for construction in Tyumenskaya Oblast.

Moreover, the conference approved types of wooden housing that are subject to delivery to Tyumenskaya Oblast by USSR Minlesprom [Ministry of Timber and Wood Processing Industry] and USSR Gossnab and a number of other engineering decisions. Organizational and engineering measures for each city and settlement were worked out and approved, and also the executive agents were identified and dates were set for design, construction, material and production support for construction, and so on.

With a view to improving housing and living conditions for personnel of the compressor stations of the Urengoy-Nadym-Punga-Ukhta-Gryazovets, Gryazovets-Moscow Oblast Gas Ring, and Gryazovets-Torzhok-Minsk-Ivantsevichi gas trunk pipeline systems, which transport Tyumen' gas to the country's central and western regions, construction organizations of a number of ministries and agencies were enlisted to build settlements and concrete tasks for introducing housing were set for them. Special attention was paid to providing for the construction of towns and settlements at a high urban-development level, with the full amount of engineering equipment, civic improvements and greenery.

/Recently the share of the total area of housing provided with all types of amenities has grown substantially (87 percent in 1979 vs 76 percent in 1978).

Last year 12 enterprises of the ministry put all apartment houses into operation with a full set of municipal services.

In 1979, 95 percent of the apartment houses were built in accordance with standard designs, 5 percent in accordance with individual designs. One hundred seventy-five thousand square meters (32,000 m^2 more than in 1978) were built under new standard designs. This means that the use in construction of designs that call for more convenient layout and modern finishing of apartments has increased and housing quality has improved.

All the housing put into operation in Orenburggazprom [Orenburg Gas Production Association], Soyuzuzbekgazprom [All-Union Association for Gas Production in the Uzbek SSR], Uraltransgaz [Urals Association for the Transport of Gas], Sredaztransgaz [Central Asia Association for the Transport of Gas] and Soyuzgazmashapparat [All-Union Association for Natural-Gas Machinery and Apparatus] in 1979 was built under new standard designs. However, this housing construction was not used properly in Sakhalinmorneftegazprom [Sakhalin Offshore Oil and Gas Production Association], Turkmengazprom [Turkmen Gas Production Association], Stavropol'gazprom [Stavropol' Gas Production Association], Soyuzgazavtomatika [All-Union Association for Automation of Gas Industry Enterprises] and many other associations.

The quality of apartment-house construction has improved somewhat during the last 2 years. In 1979 the rating "excellent" was awarded to 20 apartment houses that cost a total of 17.1 million rubles, while in 1977 only 2 facilities, which cost 0.4 million rubles, were so honored. Nevertheless, cases of acceptance of apartment houses with uncompleted work still occur.

/The managers of associations and enterprises and all workers of the client services should direct their efforts to providing workers with good permanent-type housing. Jointly with oblast and rayon executive committees, they must identify the complexes of towns and settlements that are to be developed; adopt for construction standard designs that meet modern requirements for comfort and the demands of the climatic conditions of the area of construction; and assign tasks to design organizations and constantly monitor quality during the design process and the timely preparation of design and budget estimating documentation.

Special attention should be paid to providing contractors with drawings for 1981-1982 construction. Technical surveillance over construction and quality in execution of designs must be reinforced, and the acceptance of uncompleted jobs must not be permitted. Workers who provide complete sets of equipment and supplies should turn on the green light for projects for building housing and domestic-services facilities.

The production base of the ministry's construction organizations must be developed more widely. Housing built in-house is a great contribution to the solution of the tasks facing us./

COPYRIGHT: Izdatel'stvo "Nedra" "Gazovaya promyshlennost'", 1980

11409
CSO: 1822

UDC 622.279.23/.4(571.1):625

ROADS MUST BE BUILT FOR WEST SIBERIAN GAS FIELDS

Moscow GAZOVAYA PROMYSHLENNOST' in Russian No 8, Aug 80 pp 10-11

[Article by G. A. Shemrayev, chief design engineer, and B. Sh. Indin, chief of the Road Section of YuzhNIIgiprogaz [State Scientific-Research and Design Institute for the Gas Industry in the Southern Regions]: "An Outstripping Pace Is Required for Road Construction"; passages enclosed in slantlines printed in boldface]

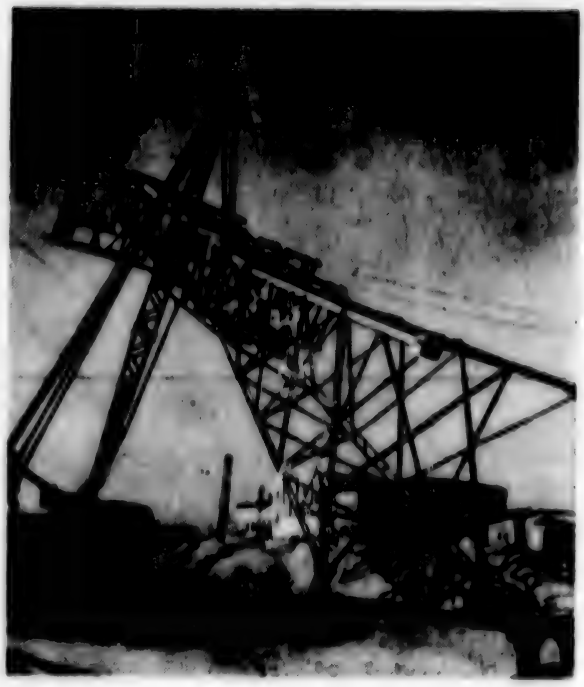
> [Text] Road-construction work should be accelerated both by recruiting additional construction organizations and by the wide use of new, progressive engineering solutions in roadbuilding.

In order to solve the major national-economic tasks of the further integrated mastery of underground wealth and increase in the productive forces in West Siberia's oil and gas region, tens of new oilfields and gas fields and thousands of kilometers of gas and oil pipeline are to be put under industrial development, and work to build up the fields will increase substantially.

In order to provide for normal operation and the construction of these facilities under circumstances where travel by any vehicle is practically completely precluded during the summer because of the ubiquity of marshes and the great thixotropy of the active layer, much work must be done to build roads. For facilities designed by YuzhNIIgiprogaz alone, the average annual amount of hard-topped roads introduced is 450-500 km.

However, road construction lags considerably behind the pace of introduction of facilities for the recovery and transport of gas. Thus, since the start of the buildup of the Medvezh'ye gas field, only about 45 out of 110 km of hard-topped roads have been introduced, and at the Vyngapur gas field the figure is only 40 out of 70 km. Roads along gas pipelines have not been built at all.

/Roadbuilding should be accelerated by recruiting additional construction organizations and by the wide application of new, progressive engineering solutions for road construction./



Power Transmission Lines Are Being Built in West Siberia to Supply Electricity to Gas Industry Facilities.

/Phased Road Construction./ Mingazprom [Ministry of Gas Industry] has recommended the wide dissemination of progressive experience of Middle Ob-' oilfields in the phased construction of roads topped with reinforced concrete slab to gas-industry facilities located in West Siberia. The essence of this experience consists in the use of peat soils as the base course and lower part of the earthen embankment and of the phased method of erection of the "top dressing" on the marshes. This method calls for the preliminary laying of reinforced-concrete topping slabs without monolithing of the joints and then, after consolidation of the roadbed has been completed under a load (while the road is being used, relaying of the slabs with laying down of the base course and monolithing of the joints.

Introduction of the phased method has not only enabled the cost of building 1 km of road to be reduced (by 300,000-400,000) rubles but also the pace of transport construction to be raised considerably (1.5-fold to 2-fold) during the erection of gas-industry facilities in this rayon.

/The Use of Hydromechanization Equipment./ The wide use of hydromechanization equipment in road construction increases greatly the quality of the earth-filled roadbed, reduces labor expenditure 1.5-fold to 2-fold in comparison with traditional methods of fill work, and in some cases is the sole feasible engineering solution (for example, in the Yamburg field environment).

/The Use of Nonwoven Synthetic Materials (NSM)./ By using NSM's as a foundation in the roadbed and in the road's top dressing, there are reductions of earthmoving work (by 30-40 percent) and of expenditures for labor and machinery, construction periods are shortened (through the elimination of seasonal idle time), operating reliability is raised, and the service lives of the road structure are increased. Moreover, a potential for working on sections with difficult soil conditions is provided for.

However, the industrial production of nonwoven synthetics for roadbuilding needs is being mastered extremely slowly, and it still has not left the experimental stage. Up to the present SoyuzdorNII [State All-Union Scientific Research Institute for Roads] still has not developed the necessary instructions and norms for the application of NSM's during road construction.

/The Use of Small Road Bridges Made of Metal Structure and of Large-Diameter Culverts Made of Corrugated Metal./ The technical regulations for economical expenditure of basic construction materials (TTs-101-76) requires that road bridges with spans of less than 42 meters and culverts 1.5 meters or more in diameter be made only of prefabricated or monolithic reinforced concrete in the northern construction-climate zone.

However, in the Far North the construction of small bridges and large-diameter culverts with reinforced concrete is hampered greatly because of the lack of a construction-industry base and the complexity of delivering structure from the country's central regions to the place of construction. As a consequence of this, there is an almost complete absence of small bridges on roads built at the Medvezh'ye gas field.

In order to introduce metal structure widely in road construction, it is necessary to develop as rapidly as possible standard designs for small bridges and large-diameter pipe made of metal and to organize the production thereof.

/The use in road construction of the new engineering solutions named above will enable the pace of roadbuilding to be sharply increased during the erection of gas-industry facilities in West Siberia. It is necessary here that roadbuilding lead the introduction of facilities for the recovery and transport of gas by at least a year. This will enable acceleration in the buildup of the fields and the construction of gas pipelines, housing and social, cultural and personal-services facilities./

COPYRIGHT: Izdatel'stvo "Nedra" "Gazovaya promyshlennost'", 1980

11409
CSO: 1822

IMPROVEMENTS MADE IN OIL WELL REPAIR EQUIPMENT

Moscow VYSHKA in Russian 23 Sep 80 p 2

[Article by S. Kuliyev, deputy head of association "Soyuzneftemash": "Equipment for Well Repair"]

[Text] In his article "Could They Have Attained More," published in VYSHKA No 182 of 8 August, E. Akhmedov, foreman of the underground and major repair shop of the N. Narimanov NGDU [Oil and Gas Extraction Administration], quite correctly points out that shortcomings in shop operations are associated with its unsatisfactory technical equipment.

In fact, the tractor hoist "AzINMASh-43P" is not suitable for repairing wells 3,500-4000 meters deep, since the rated maximum pulling force of its winch cable cannot guarantee repair of wells over 2,000 meters deep.

The tractor hoist unit "AzINMASh-43AM" with lifting capacity of 50 T has been made at the order of the all-union production association "Kaspmorneftegazprom" to repair offshore wells 3,500 meters deep. The winch has been installed on a powerful T-130 tractor and has a reinforced derrick and increased number of jets in the block and tackle system as opposed to the "AzINMASh-43A" unit.

In order to repair deep offshore wells located on individual bases the LPR-10E winch has also been made. Comrade Akhmedov speaks of it in his article. Several such winches have already been fabricated.

The shortcomings found in one of them which caused the malfunctioning of a bevel gear and the electrocontactors mentioned in the article are linked to the unsatisfactory quality of fabrication and are impermissible. Measures have been taken to exlude this type of oversight in the future. Currently the defects have been removed in the winch and it is operating.

The remarks made by the oil workers during the testing and introduction of the LPR-10E winches, by the AzINMASh and the Lieutenant Shmidt Plant have been taken into consideration. In particular the braking system has been strengthened, and steel brake blocks and coupling blocks have been used instead of pig iron. The hydraulic and pneumatic systems have been made more convenient for maintenance.

In recent years the designers of the all-union production association "Soyuzneftemash" have developed and jointly with the plants have made a number of new types of equipment for well repair both on dry land and at sea, including equipment stipulated by the decision of the all-union conference in Oktyabr'sk in 1975.

Thus, for example, production has currently been mastered of the unique 80-ton equipment complex KORO-80 developed by the AzINMASh [Azerbaijan Scientific Research Institute of Petroleum Machine Construction] for the development and repair of deep wells and installed on a vehicle of high navigability. Upon the order of the Siberian oil workers a 50-ton complex on the MAZ-543 truck has been developed, fabricated and is being tested there for major repair of wells. Instead of the outdated unit "Bakinets-3M" a 50-ton hoisting unit UPT1-50 on a T-130 tractor has been developed, manufactured and is being tested at the fields of the association "Azneft'." The UPT-32 hoisting unit is also being tested to repair wells; it has higher technical parameters and is more convenient to operate and maintain than the "AzINMASh-43A" unit.

At the same time one should stress that gross violations of the rules for technical operation of the equipment, such as the use of the "AzINMASh-43P" hoist with 32-millimeter cable to repair wells 3,500 meters deep as indicated in the article of Comrade Akhmedov, can inflict considerable and sometimes irreparable damage not only on the well being repaired but also the equipment itself.

As for the keys for the gusher equipment, the specifications for all types of equipment provide for the delivery of one set of keys with every fifth set of machines sent to one address. The all-union production association "Soyuzneftemash" has indicated to the Lieutenant Shmidt Plant to strengthen control over the observance of this requirement of the specifications.

In attributing exceptionally great importance to the increase in the level of technical equipping of the well repair brigades the designers of the association will intensify work to make new and progressive repair equipment.

9035
CSO: 1822

FUELS

BRIEFS

SURGUT GRES--Surgut--The oil central Priob'ye is rapidly becoming a kray of great power engineering. The builders have decided to put into operation the 12th unit of the Surgut GRES that is under construction by the 60th anniversary of the Leninist GOELRO [State Commission for the Electrification of Russia] plan. It is planned to bring the first phase of this northern thermal plant that is operating on casing head oil gas into rated output by the opening of the 26th CPSU Congress. The Surgut GRES-2 is to be built next. It is planned to install six power units here with 800,000 kilowatt output each. It is planned to put the first of them into operation 2 years ahead of schedule, in 1983. [Text] [Moscow IZVESTIYA in Russian 12 Sep 80 p 1] 9035

YAKUTSK TRANSMISSION LINE--Yakutsk, 25 Sep--A 140-meter steel support has been raised on one of the islands of the Lena near the capital of the autonomous republic. This is the first of four supports that will take on its "shoulders" a 220 kilovolt power transmission line. This power transmission line will connect the Yakutsk GRES with the population points and the enterprises of the eastern regions. The brigades of installers from the power transmission line and substation construction administration "Vilyuygesstroy" have adopted the commitment to guarantee the supply of electricity to the consumers already this year. [Text] [Moscow PRAVDA in Russian 26 Sep 80 p 2] 9035

SAYANO-SHUSHENSKIY GES--The builders of the Sayano-Shushenskiy GES will put the fourth and fifth hydraulic units with output of 640,000 kilowatts each into operation ahead of schedule this year. This will be a labor gift of the collectives that are building the Sayany giant to the 26th CPSU Congress. The country's largest GES is being built and is operating. Since its first unit was started up the hydrogenerators have generated over 3 billion kilowatt-hours of electricity. A precise labor rhythm reigns in Sayany. All attention has been riveted on the start-up facilities. The fourth hydraulic unit here is called the Komsomol. On the initiative of the young builders it is planned to start it up on the birthday of the Leninist Komsomol, 29 October. An enormous 150-ton assembled generator stator has been installed in the fifth unit. This operation was carried out for the first time here. [Text] [Moscow SOTSIALISTICHESKAYA INDUSTRIYA in Russian 2 Sep 80 p 1] 9035

RESERVOIR FILLED--The hydrobuilders of the Sayano-Shushenskiy GES have started to fill the reservoir. Today the water level will reach the 430-meter mark. But in order for the fourth and fifth power units that are already preparing for start-up to be able to operate normally the level needs to be raised another 7 meters. [Text] [Moscow SOVETSKAYA ROSSIYA in Russian 2 Oct 80 p 1] 9035

CSO: 1822

END

END OF FICHE

DATE FILMED

November 25, 1980

D.S.